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ABSTRACT

Developed to assist the building-level administrator in implementing a curriculum management system, this handbook considers two of five duties the vocational administrator must perform to meet the obligations of curriculum management: (1) performing curriculum management functions for the vocational program and (2) implementing and conducting an evaluation system for the vocational program. Following a task listing for each of the five duties, the handbook is divided into two sections that describe in detail the tasks and subtasks of duties 4 and 5. The section on the curriculum management duty discusses three major functions/tasks: program design and development; selection and organization of vocational education content, training, and materials; and coordination of human resources for curriculum and instructional purposes. Specific topics include basic beliefs upon which vocational curriculum is based, sample delivery systems, a planning format, strategies for implementation, a vocational education materials development model, articulation, individualized instruction, and classroom management. The section on evaluation is limited to curriculum planning and improvement. Four areas are discussed: collecting and analyzing workforce information, advisory committees and the curriculum, evaluating curriculum materials, and student and employer followup. Followup materials are included. (YLB)

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The Development and Testing of A Statewide Multilevel Curriculum Management System for Georgia Vocational Education Programs

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CURRICULUM MANAGEMENT

HANDBOOK

FOR

VOCATIONAL ADMINISTRATORS

IN

COMPREHENSIVE HIGH SCHOOLS

POST-SECONDARY AREA VOCATIONAL-TECHNICAL SCHOOLS

AND

COMMUNITY COLLEGE VOCATIONAL PROGRAMS

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Paul Scott

Mike Moye

FOREWORD

The need for vastly improved curriculum design and materials in all areas of vocational education has long been recognized and lamented. Without some assistance in this field even the superior teacher experiences difficulty in keeping pace with a rapidly changing society.

Tremendous progress has been recorded in recent years in the general area of education technology, especially when the term as used is inclusive of technique as well as hardware. Unquestionably some of this progress may be observed in connection with some vocational programs. Innovative programs involving carefully designed and validated curriculum supported by planned and tested instructional materials combined with sophisticated media coordinated so as to insure continued student learning and growth are in place at various points throughout the country. Unfortunately these are often times only promising models which have not been widely adopted. Too many school leaders continue to be attracted by unrelated bits and pieces without adequate attention given to the requirements of an overall system of curriculum improvement.

A system of curriculum management demands a coordinated approach beginning with the identification of overall goals and specific objectives and continuing through the sequencing of activities, development and implementation of instructional materials and the precise evaluation of results. Emphasis is placed on continued feedback and revision. Much remains to be done in this general area for vocational education.

With escalating interest among vocational educators relative to individualized instruction, teachers are being identified more and more as classroom managers. As such, the good teacher manages the educational resources available for student use while also coordinating the learning activities of individual class members. As more and better instructional materials become

available and greater variations in individual student ability are created in classes practicing open entry admission requirements, the critical nature of the classroom management process becomes more obvious.

Recent efforts to bring technically competent teachers into vocational education classrooms have sometimes resulted in the employment and assignment of less than fully prepared teachers from the standpoint of professional training and competency. Such teachers intensify the need for supportive input from supervisory personnel. Not only must the supervisor in such situations be informed and competent relative to curriculum design, but he/she must also be able to assist teachers with varying backgrounds make varying kinds of instructional programs effectively and efficiently workable. They truly become educational managers in the strict sense of the word.

The typical Georgia public school serves as an interesting example of the changing role of vocational education supervisors. With approximately 125 comprehensive high schools offering from 5 to 15 multi-occupational programs and approximately 30 post secondary schools offering from 10 to 50 vocational-technical programs, the problems of the instructional supervisor are greatly intensified. The high school vocational supervisor and the post-secondary instructional coordinator are illustrative of the need for curriculum management systems. Without a systems approach to this heavy responsibility these jobs risk becoming chaotic attempts to reinforce failing teachers or else boring days of calloused detachment. Either way the teachers and students whom they are supposed to help likely go unassisted. Hopefully the work undertaken in the project reported herein leads toward a curriculum management system which should make teaching more rewarding and learning more certain and satisfying.

Vocational supervisors and coordinators are in strategic positions to raise the instructional level of vocational education programs in Georgia

schools. Their responsibility is indeed great. Assigned responsibility does not automatically grant professional competency to assist teachers with curriculum problems. Fortunately, such skills can be acquired and perfected. A curriculum management system provides promise of bringing some measure of order and efficiency into a situation greatly in need of organization and direction.

It is hoped this Handbook will prove helpful to those in position to make application of procedures recommended.

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DUTIES OF THE VOCATIONAL ADMINISTRATOR

DUTY 1

Providing general administration for the vocational program

TASKS:

A. Developing policies and procedures for the vocational education program

B. Developing and maintaining an inventory of tools, supplies and equipment assigned to vocational programs

C. Displaying and maintaining permanent student records

D. Forming and utilizing the general advisory committee

E. Coordinating the job placement program

F. Planning and coordinating special emphasis days

G. Developing procedures for maintenance of the laboratory and general housekeeping

H. Planning and coordinating public relations and student recruitment for the vocational programs

I. Preparing state and local reports

J. Purchasing supplies, materials and equipment

DUTY 2

Providing fiscal and physical planning for the vocational program

TASKS:

A. Scheduling vocational facilities for maximum use by students and teachers

B. Developing the building level budget

C. Preparing short and long range plans

D. Seeking supportive grants for program improvement

E. Assisting teachers with laboratory layout and management

DUTY 3

Performing personnel management functions for the vocational program

TASKS:

A. Appraising teachers performance in relation to instructional goals

B. Encouraging vocational teachers to continue professional growth

C. Employing and orienting new instructors

D. Obtaining and supervising substitute teachers

E. Supervising the instructional process

F. Relating to the school principal, curriculum director, guidance counselor, local director of vocational education, superintendent, state department of education, and the local board of education

G. Planning in-service activities with the vocational staff

H. Preparing instructors to work with craft/advisory committee

DUTY 4

Performing curriculum management functions for the vocational program

TASKS:

A. Designing and developing the vocational curriculum

B. Selecting and organizing the vocational content, training and materials

C. Coordinating human resources for curriculum and instructional purposes

DUTY 5

Implementing and conducting an evaluation system for the vocational program

TASKS:

A. Performing the needs assessment

B. Evaluating the instructional program

C. Evaluating curriculum materials

HANDBOOK FOR THE VOCATIONAL ADMINISTRATOR

The building level administrator of vocational education is the key to the overall success of the program. To play this role properly the vocational administrator must perform five major duties with equal skill. These duties are:

1- Providing general administration for the vocational program.

2- Providing fiscal and physical planning for the vocational program.

3- Performing personnel management functions for the vocational program.

4- Performing curriculum management functions for the vocational program.

5- Implementing and conducting an evaluation system for the vocational program.

In this Handbook, each of these duties is listed along with its tasks and subtasks; however, only the curriculum management duty and evaluation will be considered in any depth in this edition. Subsequent revisions and expansions will provide comprehensive coverage of the remaining tasks and duties.

The duties listed were compiled by utilizing several sources. Among these sources were dissertations, individual faculty research projects, university research projects, current literature, and concerns of state department of education staff members. After the list was compiled a purposive sample of vocational administrators was polled to verify the composite list. In the sample no major disagreement with the list was found. Consult page 157 for a complete list of references used in compiling this handbook.

DUTY 4

PERFORMING CURRICULUM MANAGEMENT

FUNCTIONS FOR THE VOCATIONAL PROGRAM

Duty Introduction

To fulfill the obligations of curriculum management the vocational administrator must address three major functions. The first function is program design and development; the second is selection and organization of vocational education content training and materials; and the third function is coordination of human resources for curriculum and instructional purposes. Each of these areas has a series of subordinate tasks related to it. These tasks will be reviewed in depth, and suggestions for completing each of the tasks will be provided for the vocational administrator's review and perusal.

Curriculum management had been described as a broad-based term used to cover all the necessary activities for designing, installing and evaluating the learning activities and training experiences of students under supervision of the school. In this context the term management is considered to mean planning, organizing/controlling, monitoring and evaluating the curriculum. The prime focus for the vocational administrator is to make certain that the curriculum itself is functional and that the instructional methodology used to implement that curriculum is sound.

There are those in vocational education who say the curriculum belongs to the instructors, not to the administrator. This cannot be true. The administrator is placed in the school to provide both curriculum leadership and quality control. Quality is indicated by 1) a well designed and planned curriculum based on empirical evidence of need, both in terms of workforce data and student interest; 2) an implementation of the curriculum executed with components that are compatible to the target population and to the curriculum content itself; and 3) a curriculum that produces the desired student outcome.

As the building level curriculum leader, the vocational administrator must demonstrate mastery of the basic concepts of vocational education and

the application of those concepts to the vocational curriculum. In their leadership capacity the administrators must also possess highly developed skills in planning, organizing, developing, testing and implementing a variety of vocational curricula.

TASK: A

DESIGNING AND DEVELOPING THE

VOCATIONAL CURRICULUM

Task Introduction

One of the more important roles of vocational administrators is that of curriculum specialist. They are responsible for providing a delivery system which functions well in the eyes of the community, the vocational instructors and, most importantly, the students. Admittedly, this is not an easy task. With diligent investigation however, the job of providing a curriculum which appropriately meets all needs may be established.

This section of the Handbook covers some techniques which may be used in the designing and development process. Discussed will be basic beliefs upon which vocational curriculum is based, sample delivery systems, a planning format and strategies for implementation.

Essential Beliefs About the Nature of Vocational Curriculum

1. Vocational education and, therefore, the vocational curriculum, is more than developing a set of job skills. It must go beyond the job skills to develop a work orientation, occupational survival skills, and career planning/job seeking skills.

2. Although basically hands-on in terms of orientation, vocational education must also provide sufficient theory and concepts to enable future workers to solve problems and make independent decisions relative to their chosen fields of work.

3. The vocational curriculum requires the same attention to curriculum theory and learning theories as the general education curriculum.

4. The vocational curriculum must be based on the actual tasks performed by incumbent workers in the specific occupation(s) -- not on what someone thinks their workers do.

5. The vocational curriculum must have balance in terms of both workforce and student needs.

6. The curriculum for any vocational program must be in harmony with the overall vocational curriculum plan for the school and school system.

7. The vocational curriculum requires constant monitoring to keep it relevant to the occupation it represents.

8. The vocational curriculum should be structured to meet the broad behavioral characteristics of students such as learning ability, social and economic needs, maturity and employability skills as well as the specific training demands of the occupations.

SAMPLE DELIVERY SYSTEMS

The Comprehensive High School

A comprehensive high school is designed to prepare students occupationally and academically for their next step in life, whether it is a job or entrance into a post-secondary school. Any school, regardless of size, can be a comprehensive high school. The school system should meet certain minimum standards. For example, schools with an enrollment of 1,000 or more must provide at least seven occupational programs, while schools with less than 1,000 enrollment must provide five. At least four of the courses offered in large schools should be lab or shop type courses. Each school should also provide for a developmental program in vocational education.

Not all comprehensive high schools offer the same courses. Their offerings are based on several factors, such as a survey made of job opportunities available in the school community; the students are also asked what they would like to see offered. For example, a school in an area where there are job opportunities in forestry might offer a special course in wood harvesting. One in a more industrial area would probably offer more mechanical-type courses. If a community has limited job opportunities available, and indications are that many students will leave the county upon graduation from high school, then courses are built around job opportunities available in the state as a whole.

Vocational programs in the comprehensive high schools use a cluster or multi-occupational curriculum (discussed on the next page). This approach provides for variety in course offerings as well as some career choice flexibility for the participating students.

The Cluster Concept (multi occupations program)

The cluster or multi-occupations program is a family of closely related occupations that have many tasks and concepts in common. A HumRROS study (1972) described the methods used to create clusters. These three approaches are descriptive, sociological-psychological, and task analytic. The descriptive approach is somewhat informational in nature. This approach does not take a true occupational analysis into account. The fifteen United States Office of Education (USOE) clusters in some ways represent the type of clustering that results from the descriptive approach (i.e. manufacturing).

The sociological-psychological approach, described by Roe (1956) and Super (1957) in their occupational matrices, like the descriptive approach is best suited for career exploratory programs. The Program for Education and Career Exploration (PECE) was developed from Roe's matrix. Neither the sociological-psychological or the descriptive approach has any real potential for developing vocational programs designed to teach entry level job skills. The task analytic method is the only means for developing the job entry oriented cluster.

The task analytic approach should be used by the local education agency to form the secondary level vocational clusters. Care should be taken to ensure that the content configuration of these clusters fully reflects and relates to the local and state job markets. The vocational administrator should also be aware that a cluster does not remain entirely static. Obsolete units must be dropped from the program and new units added once a widespread need is discovered. Examples of new units would include the addition of PVC piping to the construction cluster some years back and, more recently, the addition of solar energy equipment maintenance to the electro-mechanical cluster.

The matrix in Figure 1 indicates the relationship of selected task analytic clusters to the 15 USOE descriptive clusters.

The cluster has real value for the secondary vocational education program. There are three primary advantages. First, it is more compatible with the true nature of the target population. Second, the cluster concept can be more easily related to state and local economic factors. The third advantage, better job placement potential, is an outgrowth of the other two and of the inherent flexibility of the cluster concept itself.

Students in secondary schools are still in their formative years. It is most important, however, that large numbers of these students be provided with job entry skills. The cluster concept when properly executed can do this without taking away the flexibility that this age of indecision requires for long term career development. It provides the student with the best of all worlds--a multiple set of job entry skills and an available range of alternatives for the future. The only catch here is that the individual student must put the appropriate time and effort into the cluster program--assuming, of course, the existence of a well developed curriculum and a qualified instructor.

One of the most difficult tasks in vocational education is maintaining compatibility between programs and the local/state economy. A cluster program can be adjusted on an as-needed basis to maintain this necessary compatibility, whereas a traditional single occupation program might have to be totally dismantled. The Southern economy, for example, is still both agrarian and industrial. A continuous flow of students from a single skill program would soon flood most local job markets while other trades would go lacking. In more simple economic terms the cluster has the potential to be more cost effective than other school based approaches to vocational education. One cluster approach in construction is obviously less expensive

Figure 1

SAMPLE TASK ANALYTIC OFFERINGS \ 15 USOE CLUSTERS	Agri Bus. & Nat'l Resources	Business & Office	Communications & Media	Consumer & Homemaking	Construction Occupations	Environment Occupations	Fine Arts & Humanities	Health	Manufacturing	Marine Sciences	Distribution & Marketing	Personal Services	Public Services	Transportation	Hospitality & Recreation
Food Service															
waitress-waiter				X											X
chef				X											X
baker				X											X
quick service				X											X
Sales & Distribution															
dept. store				X							X				X
food store				X							X				X
hotel/motel				X							X				X
restaurant				X							X				X
service station				X							X				X
variety store				X							X				X
wholesaling				X							X				X
Construction															
carpentry					X										
masonry					X										
plumbing					X										
residential wiring					X										
Electro-Mechnical															
refrigeration			X												
large appliances			X												
small appliances			X												
residential wiring			X												
radio/tv repair			X												
Metal Fabrication															
sheet metal									X						
welding									X						
machine shop									X						
Transportation															
tune up and electrical														X	
drive line														X	
automotive ser.														X	
brakes														X	
engine overhaul														X	
small engine														X	
Horticulture															
floriculture (greenhouse agt. flower arrangement etc.)	X					X									
nursery production and management	X					X									
landscape gardening	X					X									
turf production and management	X					X									
Graphic Arts															
line photography			X												
half-tone photography			X												
continuous tone photography			X												
screen print			X												
offset reproduction			X												
cold type composition			X												
photo composition			X												
Health Occupations															
institutional health care (nursing, laboratory, etc)								X							
supportive health ser. (pharmacy, dietary, etc)								X							
community health Ser. (dental, emergency, medical care, etc)								X							
Drafting															
electronic			X						X						
civil			X						X						
machine			X						X						
architectural			X						X						

The symbol X indicates a direct relationship between the task analytic cluster and the USOE descriptive cluster.

to operate than four separate single occupational programs.

The primary purpose of any school program is to assist students into their next life stage. For vocational education, this means helping the student become a viable part of the work force. By assisting the student in acquiring more than one set of job-entry skills, the school has provided that individual with multiple opportunities for entry into the prevailing labor market and with enough work awareness to move toward desired career goals as the opportunities present themselves. Since most research studies indicate that students wish to practice their trade within 25 miles of "home," multiple entry skills will help assure an in-field placement.

Cooperative Education

Cooperative Education either directly through specific service areas or through a general co-op program offers an excellent means for students to acquire basic job entry skills. Such a program as this requires that basic knowledges and information be developed for the student through in-school accumulated programs and that the actual acquisition of job skills and practice be accumulated while employed on a part time basis.

Individualized Instruction

Individualized instruction is another delivery system for vocational education. It can be used with either the cooperative program or the cluster as well as other types of vocational education delivery systems to increase flexibility. Individualized instruction will be discussed in greater detail later in this section of the Handbook.

Core Curriculum

A core curriculum approach can increase flexibility in vocational programs. By arranging for the teaching of those skills and concepts that are common to several programs in a single area, the skills instructor

can devote more time to the actual development of occupational skill proficiencies. This approach also has the potential to increase the numbers and variety of occupations offered through a given vocational school.

Area Secondary Vocational Center

An area secondary vocational center is designed, as are other types of vocational schools, to provide opportunities for individuals to acquire occupational knowledge, attitudes, and competencies to enter the business and industrial world as good citizens and proficient employees.

The typical area center is located in a school district with two or more "feeder" high schools. Enrollment in the center is usually handled by counselors in the "feeder" schools. With the assistance of the area center counselor, attempts are made to place students in programs of greatest interest to them.

Students are generally scheduled to spend a half-day in their home school and a half-day at the area vocational center. As an example, two class periods of 2½ hours each may be scheduled daily in each occupational course with morning classes running from 8;30 - 11;00 and afternoon classes 12;20 - 2;50.

Area secondary vocational centers adhere to the regular school calendar determined by the school district; holidays, of course, coincide with those of the home school. Most courses at the center require two years (six quarters or four semesters) for completion of the objectives of entry level job competencies. Courses at the center are provided as an extension to the course offerings by regular district high schools.

The cluster or multi-occupational concept of teaching has been a popular as well as effective delivery system in area centers. The use of this concept increases the students' employability since they will develop skills

in several occupational areas (jobs) within one broad employment field, or cluster. Sophomores, juniors or seniors attending an area secondary vocational center will receive occupational training which will serve as a prelude to post-secondary education or as a means of enhancing full time employment opportunities.

Post-Secondary Vocational-Technical Schools

Post-secondary vocational-technical schools are generally designed to offer preparatory, pre-employment programs, preparing students for employment in technical, skilled, business, and paramedical occupations. They also offer short-term extension courses, designed to assist employed individuals in updating current job skills or acquiring new skills required for employment. The post-secondary vocational technical schools' educational programs are designed to meet the constantly changing employment needs and training needs of modern businesses and industries. Students are prepared for immediate entry into their chosen vocations.

The post-secondary school, referred to as an area vocational-technical school in some states, may offer a variety of instructional programs. This variety is often necessary to meet the wide range of instructional needs in a particular community or an area consisting of several counties. Below is a sampling of instructional programs:

1. Diploma Programs: Diploma (in some schools referred to as certificate) programs equip the post-secondary student with the knowledge, skills, and attitudes required for entry into or upgrading in an occupation. Programs may be offered in areas such as business, health, skilled and technical occupations. Diploma programs are usually offered on a full-time basis ranging in length from one to two years; many of the courses comprising the diploma programs may also be offered at night.

2. Evening Programs: Some schools offer an evening program which provides a variety of short courses. Components of the diploma programs are presented, through which individuals may improve skills, retrain on new equipment, prepare for new occupations or earn a diploma.

3. Developmental Studies: Schools may offer this program to prospective students who are deficient in basic mathematics, language and/or reading skills, as determined during pre-entrance testing. They are provided the opportunity to pursue developmental studies in any or all of these areas, in order to reach the minimum proficiency levels required for entry into their chosen courses or program of study.

4. Special Training: A special training program assists individual industries by training or retraining employees for new, expanding or relocating plants. Developed jointly by the school and an interested industrial firm, a tailored program can assure the presence of trained employees upon completion of the new, expanded or relocated facility.

5. Off-Campus Training: A wide variety of short-term job oriented courses may be conducted by the technical school. These courses must be at the request (and in accordance with the needs) of area business and industry.

6. Associate Degree Programs: Post secondary vocational technical schools, in conjunction with nearby colleges, may offer some joint programs leading to an associate degree as well as a vocational diploma. These programs must be carefully articulated to provide the student with the best learning experiences both schools have to offer.

The typical post-secondary vocational technical school will have extremely flexible school calendars and daily schedules. Most schools use a quarterly schedule similar to that of many colleges and universities for the full time programs. Evening, off-campus, and special courses may be offered and scheduled as needed. The daily schedule is where a post-secondary school may demonstrate its true flexibility in meeting the students' needs. A school may have day classes meeting for six hours a day, early morning until mid afternoon, or extended day classes also meeting for six hours per day except in the afternoon. In addition, evening classes meet from two to four hours a night.

Community Colleges

Many states extensively utilize the community college concept in providing post-secondary vocational-technical programs. Philosophies and statements of purpose for these institutions may vary, but generally they are concerned with meeting the needs in the entire area served. A community college functions to provide the citizens served with the traditional general educational experiences designed to enable students to transfer to senior institutions for further education. In addition they take on tasks otherwise performed by an area vocational-technical school. Those tasks include equipping students for careers of gainful employment and preparing them for living self-fulfilling and productive lives. A community college may provide technical employment skills while concurrently enriching the cultural and physical lives of its students.

A community college may offer an Associate of Science, Associate of Arts or a one year certificate. Students in all of these programs receive instruction in classroom and laboratory settings. The selected laboratory experiences provide opportunities for the integration of theory and practice to real life opportunities. Admission requirements for the degree programs,

of course, vary from school to school. However, most require basic items such as applications, transcripts and college entrance tests. Students applying for a one year certificate program will find entrance requirements more like those of area vocational-technical schools. Those requirements generally encompass a minimum age and tests(s) for guidance and placement.

Examples of Associate degree and one year certificate programs are:

Associate Degree (two years)	Certificate Programs (one year)
Applied Technology	Air Conditioning and Refrigeration
Business Computer Programming	Automotive Mechanics
Drafting and Design Technology	Business Computer Programming
Marketing and Management	Diesel-Heavy Truck Mechanics
Laboratory Science	Industrial Electricity
Mini Computer Technology	Welding
Office Occupations	

Community colleges often offer an Associate in Applied Technology or similar degree for those students who wish to continue and broaden their education after successfully completing one of the certificate programs in an area in which a specific degree is not offered. Students choosing this alternative must also meet admission requirements for degree programs.

CURRICULUM PLANNING

The curriculum plan is both the basic framework within which the vocational program will function and the direction setting vehicle for the program. Before embarking on any curriculum planning, the vocational administrator must become totally aware of the need for empirical data. More will be explained regarding the collection and use of empirical data in the evaluation duty sections.

Very few vocational administrators will have the opportunity to plan the total vocational curriculum from scratch. Most will be involved in revising and updating the existing curriculum plan and occasionally in planning for a replacement or expansion program. However, each administrator should be aware of the basic curriculum planning process in order to be able to draw upon those components he/she will need to plan or revise any given part of the existing curriculum.

Before any planning begins the administrator must become aware of planning arena, the environment in which all this activity will take place and continue. Vocational educators, more than any other group in education, must be tuned in to the wants and needs of the community. The community will become the direct recipient and consumer of the vocational student. There is little or no lag time from school to the community. When the vocational students graduate they are immediately and directly employed in the community. Knowledge of the community workforce is then a crucial first step for the vocational administrator in curriculum planning.

In addition to general community and workforce data, the supervisor will also need to relate the vocational program to the total educational program of the school and school district. The interest of the students is a crucial factor in curriculum planning. State and federal legislation , along with State Board for Vocational Education policies and guidelines, also have a significant impact on curriculum planning.

A basic model for curriculum planning (and replanning) should include the following elements: 1) a philosophy, 2) goals, 3) the nature of the school structure, 4) subgoals, 5) objectives, 6) the instructional plan, 7) the implementation plan, and 8) the evaluation and feedback plan. Each of these elements will be considered, tempered, and developed in conjunction with prespecified empirical data. These data must be reflected in the model from the subgoals through the evaluation phase.

Description of the Curriculum Planning Model Elements

Philosophy: Every enterprise has a philosophy which serves as a guiding beacon for the organization. For vocational education, a philosophy is composed of a set of basic beliefs about the nature of students, how they learn, and what vocational education should be for them. (A sample philosophy is attached as appendix I).

Goals: A goal is a direction-setting statement that is timeless in nature and nonquantifiable. The goal of any school represents where that school would like its students to be after they have completed the program. They should be established on a system-wide basis and related to the individual program offerings through the subgoals. A system normally needs 3 to 5 student-oriented goals for vocational education.

Sample system-wide goals for vocational education:

1.0 Students will develop the capacity to make wise career decisions.

2.0 Students will acquire the basic affective skills necessary for them to obtain and hold a job.

3.0 Students will acquire job entry skills.

One should be quick to observe that these are vocational goals only. As such, these goals should become a normal

part of the school system's "set" of goals that will include, among others, goals for the basic academic skills (the three R's).

School Structure: The term school structure is used to call attention to the grade level organization patterns for the given school system. For example, school system Z might use the following configuration: elementary K-5, middle school 6, 7, and 8, secondary school 9-12, and post-secondary/adult 13 and 14.

The implications from the school structure are significant to the vocational leader. A fully developed and planned vocational curriculum will be articulated up and down. This means that consideration should be given to a goal-oriented developmental vocational curriculum that would include career awareness in the elementary grades, exploratory experiences in the middle school, job entry skills in the secondary school and advanced skill development in post secondary vocational programs. A secondary value derived from the use of a developmental vocational curriculum is improved recruiting. Such a curriculum allows students to be more aware of their opportunities and enables those who do choose a vocational preparation program to have a much more meaningful experience.

Subgoals: Subgoals serve two major purposes. First, they add a time dimension and more specificity to the overall goals, and, second, they serve to relate the overall goals to the existing school structure. The vocational curriculum should

have both process and product subgoals. (Process indicating what the school system will do and product explaining what the student will be able to do.)

Objectives: The vocational leader must deal with two types of objectives. These objectives have many names; however, for the sake of consistency they will be referred to as instructional objectives and performance objectives.

Instructional Objectives amount to a detailing of the subgoals--usually by grade level. The stated learner knowledge, attitude or skill described is broad enough to be perceived by the students and the instructor as meaningful and manageable, but would require several instructional events or sessions over a period of time to be completed.

Performance Objectives are often referred to as the "task level" objectives. At this level, one specifies a very small measurable accomplishment. They have a limited scope and are usually accomplished by the typical learner in a short period of time. Unless these are related to a higher order of objectives, they become meaningless and useless in and of themselves.

This approach of establishing goals, subgoals, instructional objectives and performance objectives offers definite advantages in curriculum planning. It produces a hierarchy of learning from the simple to the complex. This hierarchy provides direction in developing the scope and sequence for the vocational curriculum. Such a curriculum can then lead students through a growth process from basics to total competence.

The Instructional Plan: The instructional plan asks the question "How will the information contained in this curriculum be delivered to the students?" For this purpose, a review of the earlier discussion on instructional strategies is suggested. (See page 7). Based on the nature of the curriculum plan and content, a "set" of instructional strategies can be developed that will best suit both the content and the target population. Remember at this point the vocational leader is concerned about broad based instructional strategies, not learning activities.

The Implementation Plan: The implementation plan is primarily administrative. It is concerned with the logistics of operationalizing the curriculum and instructional plans. It must be concerned with needs relative to staff development, facilities, supplies, equipment and student learning materials. The implementation plan should include a time based delivery system so that all needs will be met before students enter the program.

Evaluation and Feedback: The vocational curriculum is never static. Every widespread change in the working world will have a direct impact on some part of the vocational curriculum. Organized evaluation and feedback are a must. The vocational leader must know what the business-industrial complex requires and what the vocational program completers can do in relationship to those requirements. Specific criteria for the evaluation and feedback plan are described in the last section of the Handbook (Duty 5).

Strategies for Planning Model Implementation

To implement this planning model for vocational curricula, the vocational administrator should take the following action:

1. Acquire and review all available documents and information relative to the school system's philosophy, goals, structure and vocational programs.
2. Appoint a committee to determine missing, incomplete or incorrect elements relative to the planning model.
3. Proceed with the total faculty (working in small groups) to develop/revise each element in terms of current conditions. This process should involve participation by the school system and building level administrators, academic teachers, special needs instructors, counselors, general and craft advisory committees, parents and students. These groups should begin their work by answering the following questions.
   a. Is there a statement of vocational philosophy and goals? Are they acceptable?
   b. Does the current vocational curriculum plan relate to all levels of the school system structure?
   c. Do teacher guides and instructional material exist to each of the vocational programs?
   d. Is there a comprehensive instructional plan that describes how the curriculum content will be delivered to the student?
   e. Is there empirical evidence to support the existing program and the curriculum content.
   f. Are the instructional materials compatible with the population target?

Summary

In the planning and preparation of any vocational curriculum, the administrator must keep the clubs or co-curricular activities in mind. It is through these organizations that the vocational student is able to build leadership skills and a number of the other affective skills he or she will need for success in a given occupational field. We use the term co-curricular here to indicate that these activities are an integral part of the vocational curriculum and do not exist outside the curriculum domain for social functions only.

The craft advisory committee is a valuable tool in the planning, preparation and maintenance of curriculum for any given vocational program. This committee can review existing content and content structure (i.e. tasks and objectives) to ascertain their relationship to the real life occupational situation in the community. In addition, the craft advisory committee can be most helpful in preparing the appropriate tool and materials list for a given program; their value as a form of assistance for job placement, is obvious.

Programs that have the students, teachers, and the administrator showing up every Monday and tinkering their ways through whatever comes along during the week, particularly in reference to live work, are not planned programs. Students completing those courses are not likely to have developed the total set of skills required for successful entry into the labor market.

A planned program will have two major phases which must be articulated to achieve total effectiveness. The system should have a master plan to reflect its philosophy and goals. The master plan must in turn be reflected with a program plan on the classroom/lab level.

The last implication is to evaluate the total curriculum, program by program, on some kind of regular basis. This information should provide

feedback so that the curriculum can constantly be upgraded and improved to meet both the needs of the business-industrial-labor complex and of the students who will ultimately become participants in that complex.

TASK B

SELECTION AND ORGANIZATION OF VOCATIONAL EDUCATION CONTENT, TRAINING AND MATERIALS

Task Introduction

The vocational administrator has a leadership responsibility for the tasks and activities described in this section. The instructor has an operational responsibility for these tasks and activities. Unless both of them fulfill their respective responsibilities the total curriculum will not come together in a functional fashion. (The information in this Handbook pertains to the vocational administrator's role only).

Synopsis of Related Theory

The masters of curriculum theory and design tell us that the curriculum for a vocational program must be developed in four discrete steps.

Step 1: Identify and develop the specific program objectives in detail.

Step 2: Specify the student evaluation procedure for each objective. Answer the question "How will one know when the student has achieved a given objective?"

Step 3: Determine the appropriate content for each objective (essentials only, leave the nice-to-know information out).

Step 4: Determine the best learning activities for the given objective and content.

Two factors must be taken into account when preparing vocational curricula. These are (1) the elimination of sex bias and sex role stereotyping and (2) making provisions for disadvantaged and/or handicapped learners to participate in the curriculum.

There are three primary methods for providing content materials for the vocational curriculum. These are adapting of existing materials, developing materials locally, and a combination approach. The combination

approach is the most commonly used. The following model provides a procedure for using this combination approach.

The maintenance and development of curriculum materials for classroom/lab operations in vocational education is an ongoing activity. If the curriculum for a given vocational program is allowed to "run down," the repair job will become too much to do at the school level. The guidelines in the model below were developed to establish materials for new programs and to maintain the existing curriculum over time. It is designed to function as a simple blueprint so that the vocational administrator and faculty can implement a process of curriculum improvement in phases over an extended period of time.

Vocational Education Materials Development Model

Phase One: State Mission and Priorities

The degree to which subsequent phases are carried out greatly depends on phase one, the statement of the mission or purpose (of the curriculum) and the priorities established. Defining the mission of the curriculum requires one to look at the total environment of the student and decide not only what tasks the student should learn to perform successfully in order to secure employment in a particular occupation, but also the attitudes and specific knowledges the student needs to acquire to be successful in a particular occupation. Specifically, this phase will include the following activities:

Define the mission of the curriculum

a. general statement of purpose
b. skills the student must learn
c. knowledge that student must acquire
d. occupational standards which the student must meet
e. target population considerations

Phase Two: Establish the Occupational Task Listing

What is the total content for a given vocational program? The content for any vocational program or course must flow from the tasks performed by the incumbent workers. Compiling this task list is time consuming but not unduly difficult. The following steps will be helpful in developing a task list:

1. Review all related literature on the subject.
2. Collect all available task listings for the occupation. There are any number of excellent listings published that offer the extra advantage of having been developed in a true research mode that is superior to anything an individual school could design and produce. Some of the more notable institutions involved in this work include The Center for Vocational Education, The Ohio State University; The V'TECS Consortium; and several State Education Agencies.
3. Form a tentative list from all available information and discuss that list with several (5 or 6) incumbent workers. This will help you refine the list in two ways. First, these workers can provide guidance in terms of its relevance to the local setting and, second, they can at least indicate the tasks most frequently performed by all workers and by newly entering workers.
4. The task listing should now be submitted to the craft advisory committee. It is best to do this in two stages--an introductory stage and a detailed review stage. The time lag between the introductory stage and the review stages should be sufficient to allow for careful study

and analysis of the list. The stage should be conducted during a special meeting of the craft advisory committee. Maximum attendance is necessary for this session and there should be nothing else on the agenda.

5. The previous steps will produce a basic task list. All that remains to be done is to relate it more specifically to the local job market and to the role of the entry level worker. A survey can be used for this purpose. (Remember you will need to select a representative sample of workers in a scientific manner and obtain at least an 80% return from them to have a valid statement of tasks.) In addition to verifying the task list, you will want to ask these workers some specific questions. Use the following examples as guides.

    a. What percent of your time is spent performing this task?

    b. How long have you worked in this occupation?

    c. How difficult would you rate this task to perform?

    d. How difficult is this task to learn?

    Do not ask too many questions. The time the worker has to respond to your survey will be limited. Therefore, it is better to get back the survey form with the basic information you need than not to get one back at all that is too voluminous.

6. After the survey forms have been returned, the total task list must undergo its final pruning. It is obvious that the

school based program cannot cover the entire spectrum of tasks. The following criteria can be used to reduce the list to a manageable size.

a. Is this task performed by the entry level worker?

b. Could this task best be taught on the job?

c. Can the school afford the equipment to teach this task?

d. Is this a critical task that must be mastered by the student before job entry.

The task list must be hashed and rehashed until it is compatible with the school's time constraints and the target population. The instructors must resist all desires on their part to add frills. Time will allow for the necessities only.

Phase Three: Prepare the Performance Objectives

After the task list has been prepared in final form, a performance objective should be written for each task. (In some cases, it will be feasible to combine two or more tasks to produce a single objective.) The term performance objective is used here to mean the demonstration of the specific worker behavior set forth in the task. Contrary to popular belief there are several acceptable ways to prepare performance objectives. The most common is the three part style. These parts are the conditions, behavior and standard. Another method allows the use of what amounts to an objective stem (i.e., demonstrate proper bedmaking techniques). The stem represents the action and behavior required. The conditions are embodied in the lessons themselves and the standards

are carried by the supporting criterion referenced tests. This approach is less wordy and much less time consuming for the instructor while ultimately providing the student with the necessary direction and expectations. For further study of objectives, the reader is referred to the works of Robert Mager and Norman E. Gronlund listed in the Vocational Administrator's Bookshelf section.

Phase Four: Determine the Instructional Requirements

The content is now identified and objectives have been prepared for each task to be taught. The next activity is to identify the concepts, knowledge, and skills the student must obtain to be able to perform the task. These should be identified and listed for each objective. After the list of these discrete learning steps has been developed, it must be sequenced to allow for prerequisite learning and to move the student from the simple to the complex. It will also be helpful if the learning type for each step is identified. There are several available, the most prominent being those of Bloom and Gagne.

This information will give direction to the administrator and teacher in terms of what kind of learning activities to use for each learning step detailed. An obvious example would be providing the learner with a reading assignment when he/she should be participating in a hands-on activity. Some authors refer to this as "appropriate practice." However, appropriate practice cannot be determined if the original learning step was not detailed and the learning typed.

As part of this phase, consideration should also be given to the age and nature of the student population; the instructional

time available; and the facilities and equipment available. All of these represent initial constraints and must be accounted for in developing the learning activities.

Phase Five: Developing the Criterion Referenced Tests

It is important to determine the mastery level of the vocational student, and the only sure means is through an assessment. Assessment is also the only way to identify weaknesses in the student's knowledge and skill development. The concept of criterion referenced testing is tailor-made to accomplish this purpose.

Criterion referenced test items are directly related to the stated performance objective. They are designed to measure the exact objective and the exact behavior required to accomplish a particular task. CRT's can and should be prepared to measure the mastery of both cognitive and performance skills. In addition both validity and reliability can be established for properly prepared CRT's.

Performance Measures

A complete set of scoring criteria expressed in terms of product and process must be prepared for each criterion referenced performance test. Sample scoring sheets are provided in figures 2 and 3.

Cognitive Measures

In developing cognitive measures, it is recommended that multiple choice, open ended, short answers and matching items be used. True-False items have no place in a vocational learning package. Overall, the multiple choice test item is the best prospect for

Scoring Criteria Sample
Figure 2

Health Occupations

RATING SCALE

Summarized Rating: (check one)	CODE:
23-25 high pass _____	Unacceptable Acceptable Exceptional
20-22 Pass _____	1 2 3 4 5
18-20 Marginal Pass _____	
17-below No Pass _____	

Examiner:_____ Examinee:_____ Date:_____

TIME ALLOTTED:_____ START TIME:_____ FINISH:_____

Objective: Uses aseptic technique

1 2 3 4 5

1.	Holds clean or dirty linen close to body or uniform	Usually keeps linen away from body or uniform	Always hold linen at arms length from body	☐☐☐☐☐
2.	Bed linens are removed separately and are fanned on the air	Usually linen is bundled and no loose ends are hanging	Always strip a bed by pulling linen into bundle from the four corners	☐☐☐☐☐
3.	Linen is put on chair or floor of patient's room	Usually linen is placed in hamper with no loose ends hanging over top	Linen bundle is always placed into hamper with loose end facing hamper bottom	☐☐☐☐☐
4.	Food trays left in patient rooms for long periods after meals or uneaten food left for patient to eat later	Sometimes unopened packages of food are placed in utility room for later use	Patient trays and unopened packages are always returned to diet cart immediately after patient finishes	☐☐☐☐☐
5.	Adds ice and water to removing water in pitcher	Usually empties pitcher before adding fresh ice and water	Always empties pitcher before adding fresh ice and water	☐☐☐☐☐

TOTAL ☐

NAME _____

CLASS _____

PERIOD _____

DATE _____

Scoring Criteria Sample
Figure 3

Health Occupations

SELF CHECKLIST

Objective: Washes hands according to stated procedure.

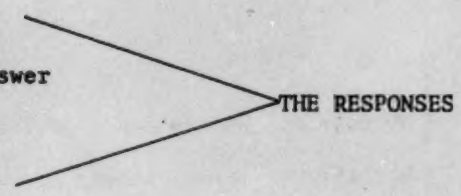
Directions: Place an (X) in the column that best describes your handwashing technique.

	Yes	Sometimes	No	
1. Removed jewelry				
2. Turned water to warm temperature				
3. Wet hands from fingertips to wrist				
4. Applied generous amount of soap				
5. Cleaned fingernails with orange stick or brush				
6. Rubbed hands for 2 minutes, interlacing fingers				
7. Rinsed by running water from fingertips to wrist				
8. Dried hands beginning at fingertips to wrist				
9. Avoided bringing towel back over an area				
10. Used a different towel for each hand				
11. Turned off faucet with towel				
12. Applied hand lotion				

measuring cognitive knowledge in vocational education. It is made up of the following components:

The stem: (the stimulus)

A - distractor
B - correct answer
C - distractor
D - distractor



One of the real advantages for the multiple choice question is its ability to be leveled according to Bloom's Taxonomy. This allows the instructor to determine the student's level of mastery from simple knowledge to the most complex levels of analysis and evaluation. A further advantage is the ease with which these items can be validated.

The taxonomy may be used in the instructor's evaluation of the student's mastery level by careful wording of text items. The six levels of learning in the cognitive domain will be explained here and examples of how to use the taxonomy to level written questions will be given. All illustrations are based on the Taxonomy of Educational Objectives Handbook 1: Cognitive Domain, Benjamin S. Bloom, et al.

KNOWLEDGE. Knowledge involves the recall of specifics, methods, processes, or structures. When using knowledge for measurement purposes, the concern is with bringing to mind appropriate material. Knowledge objectives emphasis is basically on remembering. A knowledge question in a testing situation will present the cue, signal or stimulus which will trigger the knowledge "filed away." Questions at this level should test such behaviors as:

a. definitons of terminology
b. recall of specific facts

c. recognition

d. knowledge of processes, categories, criteria, methodology principles, theories, trends, etc.

Example: (examples provided are from Distributive Education) Sample question at the knowledge level: Testimonial advertising relies upon the principle of (A) imitation, (B) association, (C) rationalization, or (D) suggestion. (Answer A).

COMPREHENSION. Comprehension represents the lowest level of understanding. The student demonstrating this level understands the material being presented without necessarily relating it to other material or seeing its fullest implications. Comprehension includes the ability to translate, interpret, and extrapolate. Questions at this level should test such behaviors as:

a. ability to translate (mathematical symbols, etc.)

b. interpretation of material

c. extention of data to determine trends, i.e. extrapolation, prediction

d. drawing conclusions

e. ability to summarize and generalize

Sample question at the comprehension level: A monopoly exists when there is a sole seller of a product or service and it has no substitute. Which of the following statements is true? (A) Price competition is severe in all types of marketing, (B) When a monopoly exists, price competition ceases to be a major marketing factor, (C) A hamburger chain such as McDonald's is a monopoly, (D) Price competition in a monopoly is severe. (Answer B).

APPLICATION. Application involves the ability to use abstractions in concrete situations. The abstractions could be general ideas, rules, methods, principles, ideas or theories which need to be remembered and applied.

Questions on this level should test such behaviors as:

the ability to apply facts or concepts

Sample question at the application level: In applying the theory of product differentation, which of the following is correct? (A) A flour miller does not view different bushels of wheat with detached indifference. (B) Differentation may be imagined such as with Bayer and St. Joseph's aspirin. (C) Americans have generally endorsed a marketing system that provides mainly undifferentiated products. (D) Automobile salesmen have a price range in which they can negotiate. This is their principal form of differentation. (Answer B)

ANALYSIS. Analysis involves the breakdown of material into its constituent elements so that the relation among parts is clear. This analysis will clarify materials, their organization, effect, as well as their basis and arrangement.

Questions on the analysis level should test such behaviors as:

a. the ability to recognize unstated assumption
b. skill in distinguishing facts from hypotheses
c. analysis or comparison of relations, etc.
d. detection of fallacies, casual relations, etc.

Sample question at the analysis level: Architectural designs vary throughout the country, as do furniture preferences. The above statement would be a factor in (A) price competition,

(B) non-price competition, (C) market segmentation, (D) market differentation. (Answer - C)

SYNTHESIS. Synthesis involves putting together elements and parts to form a whole. Questions testing on this level would involve putting together pieces, parts, elements, etc. so they will form a structure that is new to the learner. Questions on this level should test such behaviors as:

a. designing ability
b. production of plans
c. derivation of abstract relations to explain a phenomenon
d. telling or writing (only when a new product is involved)
e. formulation

Sample question at the synthesis level: Propose a plan for marketing electric powered automobiles in a town of 25,000.

EVALUATION. Evaluation requires judgement(s) on the part of the student. Judgements may be quantitive or qualitive and should be compared to a criterion. This criterion may be determined by the person writing the question or by the student. Questions on this level should test such behavior as:

a. the ability to indicate illogical faults in hypotheses
b. comparisons with standard criteria
c. assessment abilities

Sample question at the evaluation level: Evaluate by rating in order of importance the following sources of market segment information available to a marketer for campaign planning purposes.

___(A) The Statistical Abstract of the United States

___(B) Dun and Bradstreet Review

___(C) Federal Reserve Bulletin

___(D) Survey of Buying Power from Sales Management

___(E) Any daily newspaper

___(F) Time magazine

(Answer-1, 2 and 3 should be either a, c or d; & 4, 5 and 6 should be either b, e, or f.)

Phase Six: Select the Appropriate Media, Materials and Methods for Each Objective

To properly execute phase six the administrator and instructor must use the objectives and discrete learning steps that were prepared in phases three and four respectively. These objectives and learning steps must be valid in terms of the worker tasks selected for the occupational program. Use these validated objectives and discrete learning steps with the activities described in this phase to identify and organize potential student learning materials for the program.

Activity One: Develop a coding system by using a prefix for each phase of the program. For example Duty I in the electro mechanical cluster might be Basic Electricity. BE could become the prefix for all units in that duty area. The first objective for duty BE would be numbered as objective 1.0, and each learning step for that objective would be numbered as a decimal. For example learning step one would be 1.1, two would be 1.2, etc. The total code for objective one, learning step one of the basic electricity duty in electro mechanics would be 1.1.

Activity Two: Collect as many resource materials as you can find. The following sequential steps will lead to an abundant collection of materials:

1-Contact teacher educators in Division of Vocational Education.

2-Contact appropriate State Supervisor in State Department of Education.

3-Contact commercial publishing companies.

4-Contact manufacturing companies and labor unions.

5-Conduct searches through ERIC, ARM/AIM and the National Curriculum Network. The state supervisor can assist in the use of these processes.

6-As each item is received, it must be coded according to the appropriate objective or objectives. In addition, it should also be noted if the materials are copyrighted. If they are, a large C should be placed on the front cover of the document.

7-After the materials are coded they should be entered into a log. This log is a simple tab sheet to help keep track of the various materials received. A sample sheet follows on page 42.

Activity Three: Determine the suitability of the available materials. By this stage a large quantity of materials will have been collected and coded. The potential value of the materials to the program will vary. The instructor must now determine which materials will be adopted, adapted or thrown away. Some items can be used as they are. Parts of others can be used and some can be revised to fit the program. The following suggested criteria can be used for this purpose.

1-Do the product activities and content represent appropriate practice for the program objectives?

2-Are the products practical in terms of costs, available hardware, target population and the planned delivery systems?

3-Do the products address all domains of the vocational program--attitudes, skills and knowledge?

4-Are the products presented well? Do they relate to the reading level? Is the art and other support work useful? Are they attractive to the student? Can the suggested activities be accomplished within the purview of the program?

5-Are these products materials compatible with other selected materials? Do they blend with the total curriculum and instructional plan? Can the instructor manage them?

6-Does this product alone or in combination with other resources represent comprehensive coverage of the objective? In the event that a product partially covers an objective to the instructor's satisfaction, it can be used in one of two ways. If the materials are in the public domain, the instructor can use a cut and paste approach to get the materials into the correct learning package. However, if it is copyrighted material, it should be placed in the resource area and the student referenced to it by code.

Activity Four: After all available products materials have been collected, coded, and evaluated, a check should be made to determine those objectives that are not completely covered or those for which no materials were identified. An easy way to consolidate the materials and objectives is by using planning sheets and a loose leaf notebook. Two sample planning sheets follow this section. Each has its own advantage, but if it is necessary to use something of this type to isolate missing materials and uncovered objectives. This will produce the list of required developmental objectives. At that point, the instructor with the administrator's leadership will become a curriculum developer. Phase seven offers some suggestions for this work.

Figure 4

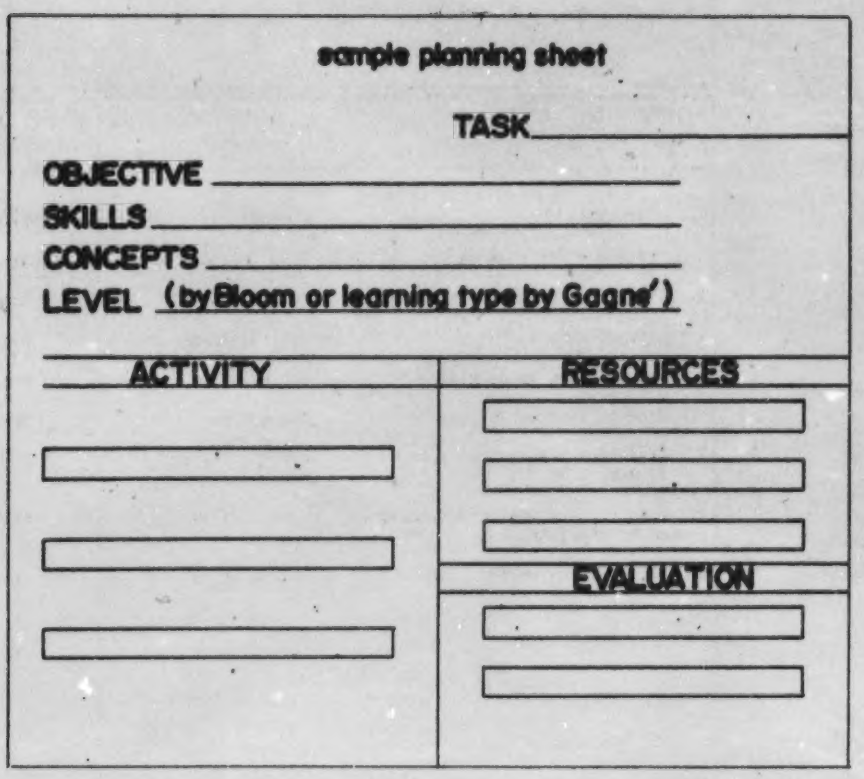

sample planning sheet
TASK
OBJECTIVE
SKILLS
CONCEPTS
LEVEL (by Bloom or learning type by Gagné)
ACTIVITY
RESOURCES
EVALUATION

Figure 5

TASK NAME Check drawings TASK NO. 44

OBJECTIVE

Given a blueprint of his own drawing, the student will be able to check said print for quality of lettering and line work, choice of views and layout, accuracy of construction and dimensions, and clarity of notes and title block information.

DETAILING AND SEQUENCING	LEARNING TYPE	TYPE OF ACTIVITY
1. Blueprints	Concept	Study written materials
2. Procedure for reading prints	Rule learning	Study written materials
3. Identify errors and/or omissions	Discrimination	Study detail
4. Correct errors	Manipulation	Written response
5. Mark changes to be made	Manipulation	Written response
6. Grading format	Concept	Study written materials
7. Grade drawing according to format	Discrimination/ Manipulation	Evaluate
8. Make corrections and/or changes on original drawing	Manipulation	Written response
9. Turn drawing in for grade	Manipulation	File drawing

Phase Seven: Developing Materials

As a prerequisite to this step, you should review the planning sheets that were developed in Phase Six. With these planning sheets, you have identified the missing materials, thus enabling you to initiate the developmental activities. This work will usually consist of the following steps:

1. identifying content appropriate to the objective
2. developing learning activities from the content
3. preparing the test items
4. supporting the learner with instructional sheets and other media when necessary

There are three basic types of instructional sheets. These are assignment sheets, general information sheets, and job sheets. Each sheet is described below.

Assignment Sheets: An assignment sheet is an instrument which directs the study to be done or assignment to be carried out by the student as stated in the objective. (i.e., prepare a manuscript from a dictaphone.)

Information Sheets: Information sheets are designed to provide the student general information and the background required to master the given objective.

Job Sheets: Sometimes called operation sheets. This is a guide sheet giving complete references and instructions on how to perform, in the proper sequence, the operations necessary to successfully complete a production job. It should list tools required and safety standards, if necessary. (i.e., Step-by-step procedure for cleaning the typewriter.)

When all missing parts and materials have been prepared, the

instructor can begin to package the curriculum. Packages can be designed for use in groups or in an individualized instruction format. It is recommended, however, for vocational curricula that a package format be used that lends itself to the individualized approach. Even though group instruction may be the primary mode, an occasional student, either for remedial or accelerated purposes, will need to function independently of the class. The adminstrator and instructor can devise their own format or use the one suggested in this section.

1. State the measurable objective
2. Provide some pre-check items
3. Provide student activities with options when feasible
4. Provide self checks
5. List all resource materials
6. Provide post check items--both cognitive and performance
7. Include the required instructional sheets in the student activities sections

Phase Eight: Field Testing and Validating the Packages

The important question now is whether the materials produce the desired student behaviors. This should be verified, in so far as possible, before the materials are used with the entire student population. This will require three basic steps. First, edit the total set of materials for grammar and for content. Second, perform a face validation of your packages. This would include having other teachers assist you in reviewing the materials to determine if they are well organized, contain the proper content and are within the ability and reading levels of your student population. Finally, try the units out with

some of your students to determine that the materials do, in fact, enable the students to master the given objectives.

Phase Nine: Implement the Instructional Program

Reorganize your classroom or laboratory, if necessary. Be certain that an ample supply of materials are available for student use and that you are fully aware of every idiosyncrasy in your new curriculum. Do not be concerned if a given unit fails to function. Simply reinforce and repair it and continue your program.

Phase Ten: Evaluate the Curriculum

Curriculum evaluation is a continuous process. However, at no time is it as important as it is after the installation of a new curriculum. The administrator and the instructor should jointly plan a total evaluation. This should include, but is not limited to, the items enumerated below.

1. Keep a process log. This will allow the instructor to document the learning activities and to indicate those that present unnecessary problems to the students.
2. Keep a master set of the materials at hand. The instructor can note special problems that involve the materials and identify all of their shortcomings. Many of these problems can be corrected on the spot and their reoccurrence prevented during the next learning cycle.
3. Provide for the formal assessment of the students. Cognitive and performance tests that are criterion referenced will help pinpoint those materials and learner activities that are not producing.

4. Perform a curriculum oriented follow-up of students who have completed the new curriculum. Also, seek information from a sample of their employers. A sample student questionnaire is available in the evaluation section of the Handbook.

Phase Eleven: Revise the Curriculum

The administrator should work constantly with the instructor to revise and update the curriculum. This eleven phase system is designed to allow the vocational administrator the opportunity to work with each instructor for the improvement of the overall vocational curriculum. The system will allow the administrator to start small and simple and grow into a more complete and complex instructional system. Move the curriculum forward by asking these questions.

1. Did the students achieve the objectives?
2. Could the students use the material?
3. Have the job tasks changed?
4. Is there any "fat" in the curriculum?

The administrator should have a regular review schedule for each curriculum. During this review all collected data and information can be analyzed and necessary corrections made. New materials can be blended into the program and the obsolete parts can be deleted. During this revision phase, concentrate first on effectiveness, then on efficiency.

Special guidelines to apply when using the curriculum planning model to develop materials for the handicapped.

1. The initial objective must be based on actual occupational tasks.

2. The handicapped learner generally requires greater detail in their curriculum materials and provisions for more practice.

3. The curriculum materials must be based in a positive mode, emphasis should be more oriented to what students can do as opposed to what they can not do.

4. Provisions should be made for peer instruction whenever possible.

5. Part to whole learning should be used in the beginning, leading to a combination of the skills and supporting knowledge further leading to the whole learning of the specified performance.

6. Even though materials may be designed to teach a particular motor skill, consideration must be given to intellectual skills required to combine the motor activities in a fashion that will cause the students to be able to perform the whole task.

7. In preparing handicapped students to perform tasks it is important they have all the prerequisite skills and be oriented to the "What, when, and how" before actually beginning to learn the new performance.

8. A readibility level check should be made on curriculum materials (to be matched with the student's reading performance level.)

9. When possible, flexible grouping should be used.

ARTICULATION

Articulation is one of the major concerns of the vocational administrator. Contrary to popular opinion, articulation does not occur through an interface of personalities. Personalities are important, but articulation can only occur through the curriculum. The four major barriers to inter- and intra-school articulation are:

1. Administrative inflexibility
2. Teacher attitudes
3. Poorly designed curricula
4. Lack of adequate assessment instruments

By the way of example, the high school cluster curriculums will serve as the pivot point. From that point the curriculum plan must connect back to the middle school exploratory program and the elementary school career awareness program. The secondary school curriculum must also overlap and join the appropriate program offerings at the post secondary level.* In addition, the secondary vocational curriculum must be coordinated with the appropriate academic courses in the school's general curriculum.

The use of the overall curriculum planning model described earlier is the best means for accomplishing the totally articulated program. This approach to articulation requires the careful development and statement of each objective coupled with a straightforward procedure for determining the degree of student mastery of each objective. All instructional levels must then accept these objectives and proceed to implement them according to the instructional plan for that given curriculum. Post secondary schools will need to make provisions for all job entry objectives since many students do not seek job training until they reach the post secondary level.

*(See figure 6).

MULTI-DIRECTIONAL CURRICULUM ARTICULATION

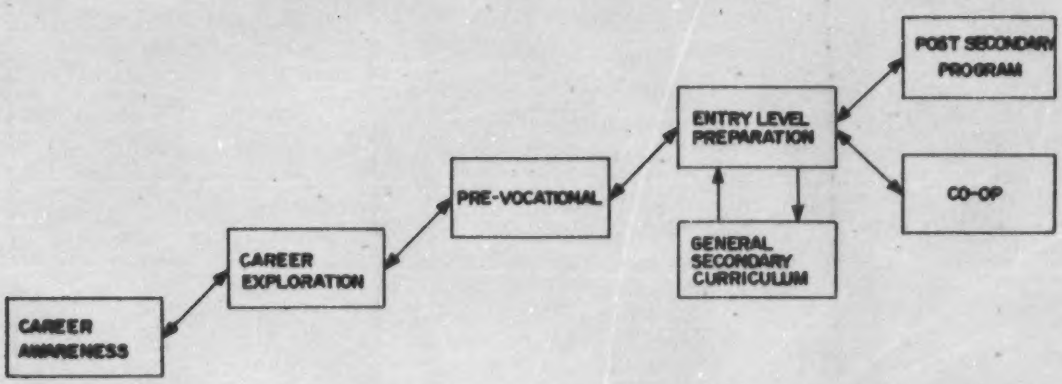


Figure 6

Figure 7

TASK DETAILING SHEET

TASK NAME _____ TASK NO. _____	
OBJECTIVE: _____	
DETAILING AND SEQUENCING	LEARNING TYPE

Explanation: This is a work sheet used by the curriculum developers in detailing a task. Task detailings are available from many sources; therefore, it may be possible to simply alter an existing list to fit development needs. When using this sheet the developer must also remember the task detailing is not a procedure for doing the task nor is it a "performance guide." A task detailing is the sequence of learning that needs to take place before a task can be successfully performed.

Figure 8

MEDIA SELECTION FORM

TASK NAME: _____

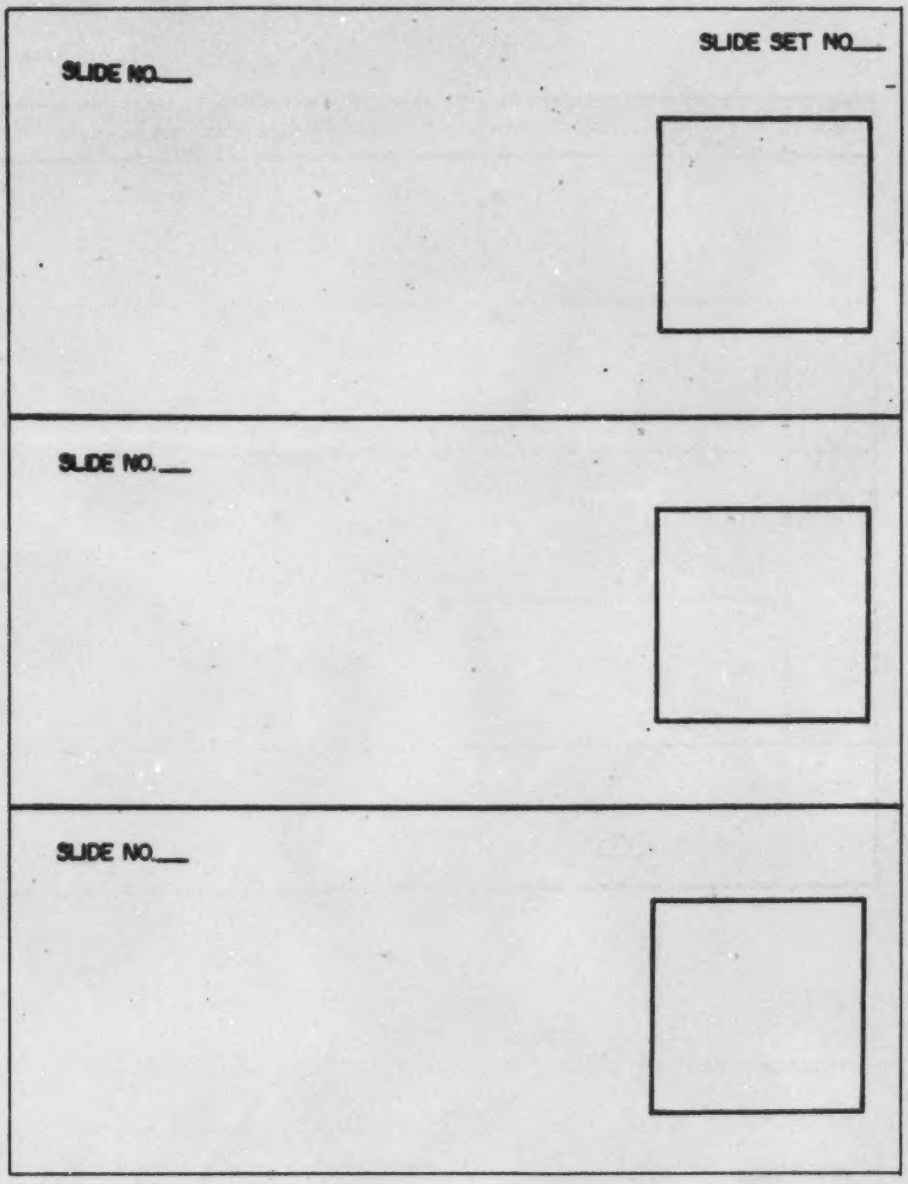
TASK NO. _____

DETAIL NO.	READING ASSIGNMENT (TEXT, REFERENCES, INFORMATION, ASSIGNMENTS)	AUDIO VISUALS (TYPE, DESCRIPTION)	LABORATORY (OPERATIONS, PROJECTS, EXPERIMENTS, ETC.)	CHECKS (TYPE, DESCRIPTION)

Explanation: This form is designed to help the developer keep track of material selected. Wise curriculum developers will not write resource materials if they can keep from doing it. This is especially true during the initial development phase when the developer is really "guessing" about what is needed.

Figure 9

AUDIO-VISUAL DEVELOPMENT FORM



Explanation: When suitable slide presentations are not available from commercial sources, the curriculum developers may have to create their own. This form provides a space for the actual script and a rough sketch of what the slide should look like.

Figure 10

CHECK POINT WORKSHEET

Unit no._____

Objective:

General Comments:

CHECK POINTS:

C-1

C-2

C-3

C-4

C-5

Explanation: At various points throughout the instructional sequence it becomes necessary for the instructor to check the student's progress. This form is provided for use by the materials' developer to help identify check points. These checks may be status, safety, answers on a quiz or an assignment sheet. Checkpoints are necessary to insure the instruction is "headed in the right direction."

Figure 11

TEXT ASSIGNMENT SHEET

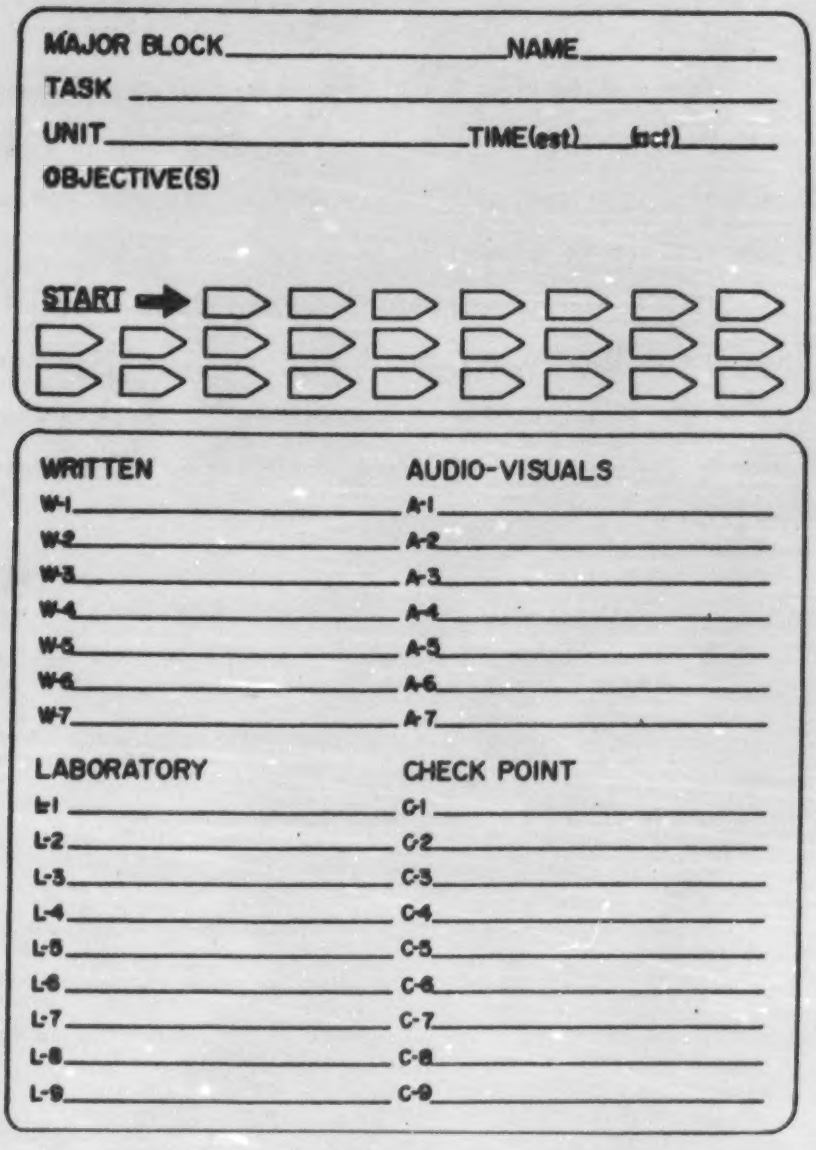
TEXT ASSIGNMENT SHEET

ASSIGNMENT NO.	TEXT NO.	PAGES	STUDY ASSIGNMENT

Explanation: This form is used in conjunction with the UNIT SHEET which directs the student through the steps necessary to accomplish the learning objective. When a written assignment is required on a UNIT SHEET it refers the student back to this TEXT ASSIGNMENT SHEET for the actual instructions. Many assignments may appear on this form; in fact all the assignments for several units may be placed on one TEXT ASSIGNMENT SHEET.

Figure 12

UNIT SHEET



Explanation: A key element in developing individualized instruction is this form which actually directs the student through the complete learning process. The top portion of the UNIT SHEET contains all the necessary descriptive information as well as the unit objective(s). Second is the trail of learning steps the student must follow. In the third major sections are the learning activities referred to in the section above containing the "bullets" or learning steps.

INDIVIDUALIZED INSTRUCTION

Introduction

This section assumes that the vocational administrator in conjunction with the school faculty has decided to move toward individualized instruction. It also assumes that little or no outside help will be available to assist them with the implementation process.

All administrators should be forewarned here that you do not individualize instruction just for the sake of individualizing. One must have a valid reason for moving in this direction. The following rationale statements were used by Georgia vocational educators at all levels for individualizing their programs.

1. Individualized instruction takes into account the basic differences in individuals including special populations.
2. It can provide for the open entry-open exit approach to vocational education.
3. It will enhance articulation between secondary and post secondary schools.
4. It allows for entry with advanced standing.
5. It can improve overall cost effectiveness.
6. It will expedite the implementation of the cluster concept.
7. It can insure adequate coverage of program content.
8. It enhances movement toward a performance based approach to vocational education.
9. It will provide commonality in the objectives of similar programs statewide.

The end result of these reasons and the real purpose for individualizing any program is flexibility. A lock step approach to vocational education curricula in today's society is totally inadequate. Some form of individualized instruction offers the only viable alternative.

Defining Individualized Instruction

Since the concept of individualized instruction has been widely misunderstood, it is necessary to establish a working definition before entering the implementation discussion. The following two paragraphs are used to explain and define the Georgia concept of individualized instruction.

Individualized instruction in its basic form is simply a flexible system designed to organize and coordinate all of the components of instruction so that the learning activities can be customized to meet the needs and obtain the goals of any given student. Such a system allows the student to function at a pace that is compatible with his/her ability. In addition, the fundamental premise that all students in a given class do not have to move step by step through a predetermined, hierarchical, sequenced curriculum essentially separates individualized instruction from group instruction. The precision in stating instructional goals required by the individualizing process further serves to eliminate the guessing game between students and teachers that has been commonplace in traditional group instruction.

The general concensus is that individualized instruction is a process that stresses variety in teaching material, the use of multimedia and auxiliary personnel, concern for time and pace, mastery learning, socialization, diagnosing and prescribing with precision for each student, establishing goals and objectives, and different learners achieving different objectives in different ways. The process can be fully individualized or partially individualized. This can be accomplished by varying the pace, the content, or the way in which the content is presented. Such a process also affords the opportunity to establish a one-to-one relationship if required; however that is not the exclusive purpose of the system. In an individualized vocational program, students will work alone, in groups, and from time to time,

with a piece of machinery, each in its turn and on an as-needed basis. Finally, individualized instruction is a means, not an end in itself.

Vocational administrators should note that the next section "Establishing Proper Attitudes for Change" can be used as an example for instituting curriculum change. Administrators who are not moving toward individualized instruction will find that a review of this section still has value in terms of producing an organized curriculum improvement plan. One of the initial steps to take in any improvement effort is to deal with the psychological and sociological aspects of change in human behavior. The next few pages will present one organized approach for implementing a curriculum change.

Establishing Proper Teacher Attitudes for Change

Before any new curricula can be installed, the participating teacher must be prepared attitudinally to receive it. The old adage "you can lead a horse to water, but you can't make him drink" is very appropriate here. You can bury a vocational instructor in new materials, but unless he or she is prepared attitudinally the materials will remain unused.

Preparing For Curriculum Change

Administrative fiat is not the way to produce or implement a curriculum change. Instead, a systematic approach must be used. This approach must focus on attitudes, knowledge and skills. The instructor must be in the right "frame of mind" and possess a positive attitude toward the change of the program before any improvement can take place. Each instructor will need to acquire knowledge relative to available materials, how to develop materials and how to implement them. The instructor must also possess some skills in basic curriculum work such as preparing task lists, writing objectives and test items, developing instructional units, and curriculum planning.

To produce the desired results the vocational administrator must assume

the role of change agent or advocate of curriculum improvement. This requires two things of the administrator: first, that he/she possess and demonstrate a positive attitude and, second, that he/she either possess or acquire competencies in curriculum leadership. Once the improvement process begins, the administrator will literally "carry" the instructor through each step. This can only be done if the administrator is positive in attitude and competent in the task of curriculum improvement.

Curriculum Improvement Guidelines

Step one: Establish readiness for change

The success of all remaining activities hinges on this step. The first person to be prepared is the vocational administrator. He/she must have the positive attitude and the necessary competencies to lead the faculty through this effort. Curriculum improvement requires sensitivity to the needs of the people involved. Over time the faculty has formed habits that are most comfortable to them and it is difficult to break these habits and rituals. The administrator must recognize them and deal with them in a positive but humane fashion.

The faculty will possess certain fears that can be ignited by the ever present negative rumor network. The two primary fears are the fear of job loss and the fear of appearing stupid. Proper communications will relieve most of the tension and neutralize the rumor mill. This is a time for openness on the administrator's part. Make it plain that individualized instruction, for example, is not designed to take away anyone's job and that there will be enough staff development to make certain that every participating teacher can get the job done. Small group discussions and activities represent the best technique for establishing wide open communications. It is also helpful to invite

guest speakers to discuss needs and problems on a larger scale than those confined to the school building. This can serve as motivation and provide the instructors with a base to which their own needs and problems can be related or exposed. Choose these speakers carefully, however. They must be someone the faculty knows and respects, not "Prophets of Doom."

Finally, this is the time to promote a climate of teamwork with the administrator in the thick of it. Develop a task orientation; delegate authority and responsibility to all faculty members. Each one should have some leadership role. Jointly define the problem(s) and determine what each instructor is to do. Remember the reasons for the change--you are not changing just for the sake of changing; protect individuality; reassure every participant that he or she will have enough support to get the job done; and above all, know that you will best lead by competence instead of authority.

Step two: Developing instructor competence

After the faculty has been led to a state of attitudinal readiness, it is time to provide them with basic curriculum competencies. Many faculty members will have already mastered part or all of the competencies. Use these people in a new teaching role to help others. The best procedure for teaching these necessary competencies, however, is to have the faculty go through the procedure for each competency as a part of the overall plan. For example, curriculum planning is the first competency. Why not actually plan the total vocational curriculum at the school building level? This could be done for each competency listed below.

Skill Competencies Required for Curriculum Improvement:

1. Curriculum planning
2. Selecting and/or developing instructional materials

3. Implementing new instructional materials

4. Evaluating the vocational curriculum

NOTE: Always place the focus of the evaluation on the curriculum. This tends to take the "heat" off the instructors and enables them to make better use of the validated data. It also prevents poor performance from being blamed on "dumb" students.

Step Three: Establishing awareness of the new curriculum

As the faculty acquires the curriculum competencies described in step two, their interest in and readiness for improvement will expand. At this point, the administrator can introduce the new curriculum and increase interest in its acceptance. To accomplish this step, the following activities must be completed in sequence.

a. Arrange for the appropriate instructor to visit another school that is using the new curriculum satisfactorily. The purpose of this visit is to give the receiving instructor as much positive feedback as possible. Therefore, the site must be selected with great care. (This approach prevents their being derogatory about the materials.)

b. After they have seen the materials in use in a positive environment, provide them with a complete examination set. Make it clear to them that they will adapt the materials to fit their program objective, not adapt their objectives to the new program. This is often a significant point of encouragement, particularly to the conscientious instructor.

Step Four: Accepting the innovation

The previous steps have led to this decision point. The final determination must involve both the administrator and the instructor. It is a shared decision. The administrator must have established a working climate that will allow the instructor to accept the total curriculum, accept any part of it, or reject it outright.

Once the decision to accept this innovation has been made, it should be acquired as a complete unit. The receiving instructor should be provided with an adequate amount of time to set up and review the entire system. This must include the development of supplemental materials and packages. The administrator's responsibilities here include arranging the free time (perhaps by keeping the instructor employed through the summer or by reducing the teaching load during the academic year) and insuring that all necessary resources are available to the instructor. Above all, this is the time to provide the most supportive environment possible.

Once the new curriculum has been set in place and completely reviewed by the instructor, it is ready for the first test run with students. If this is a totally individualized curriculum, it may be advantageous for the instructor to teach through it the first time in a semi-traditional fashion. This is especially true if the instructor has not had previous experience with individualized instruction. In any event, careful evaluation and review records must be kept. (See Duty 5 for materials evaluation suggestions.)

Step Five: Institutionalization of the innovation

Institutionalization of the new curriculum will occur when the instructor has concerned weaknesses and is able to use the materials

and process on a daily basis. At this point the administrator, with the instructor, must develop a maintenance plan.

Scheduling the Implementation

Installing any new curriculum, but particularly one that is individualized requires detailed planning. Each task or event must be identified in advance and scheduled by time and place. The Gant chart (figure 13) could be used as a scheduling guide.

Materials Search and Acquisition Procedure

(See the model in the curriculum planning section, phase six). Phase six in the curriculum planning section provides a materials search and acquisition procedure. This model can also be used to blend materials from a variety of sources into a common curriculum. The key concept for any search is to identify all student objectives for the program and verify any piece of material by those objectives.

The System Contents and Components

A systems approach is required to develop individualized instructional materials. Each individualized vocational curriculum will feature both content and components. Content is the sum total of all information and skills required to master the specified objectives. The components of the system indicate the technique for delivering the content. Video tapes, slide/tape presentations or written materials are all examples of system components. Both the content and the components of an individualized curriculum will be described in the teacher's guide. It is advisable to review these first.

Materials Development Procedure

The concept for individualizing instruction is basically simple. First,

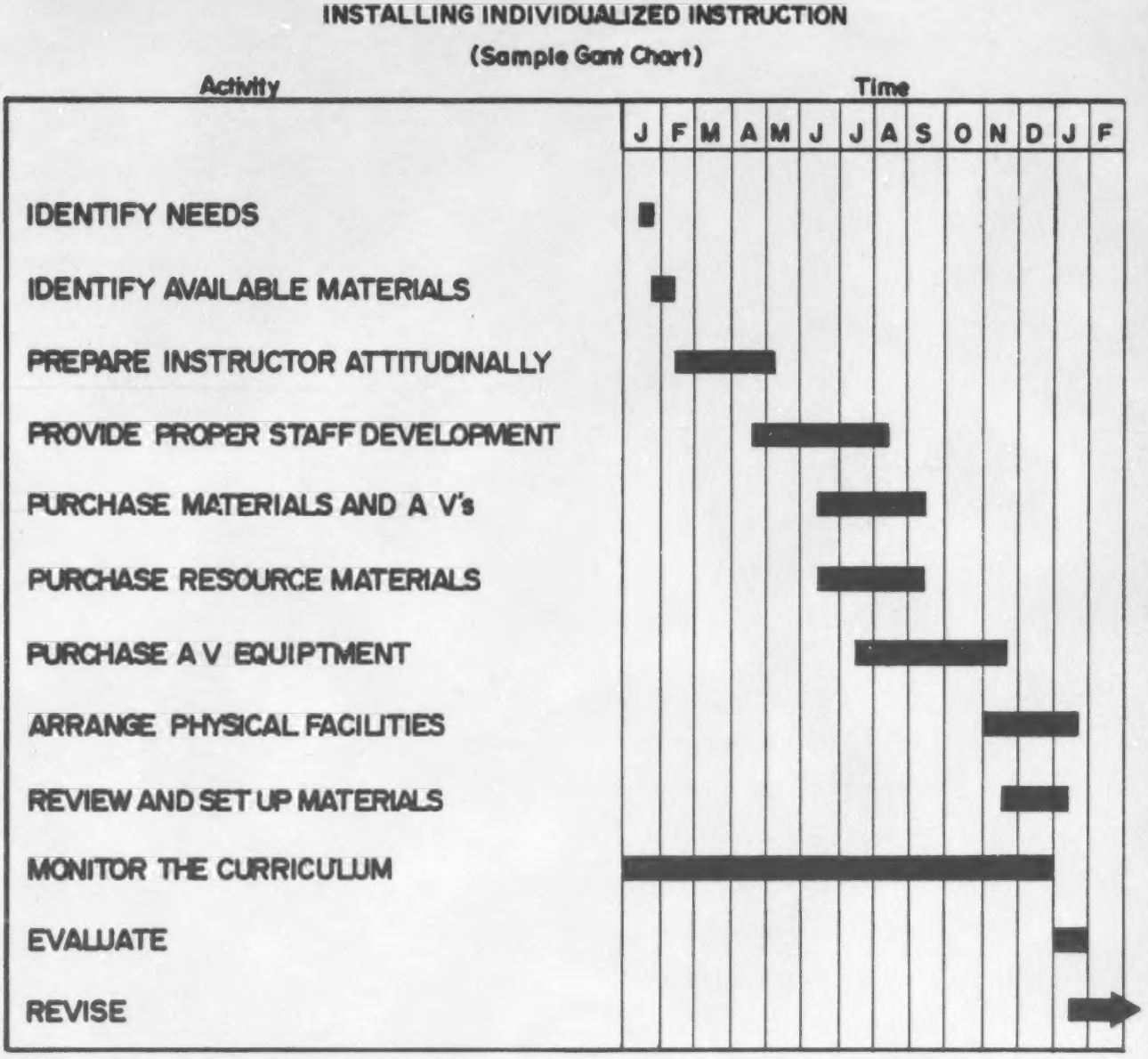

INSTALLING INDIVIDUALIZED INSTRUCTION
(Sample Gant Chart)
Activity
Time
J F M A M J J A S O N D J F
IDENTIFY NEEDS
IDENTIFY AVAILABLE MATERIALS
PREPARE INSTRUCTOR ATTITUDINALLY
PROVIDE PROPER STAFF DEVELOPMENT
PURCHASE MATERIALS AND A V's
PURCHASE RESOURCE MATERIALS
PURCHASE A V EQUIPTMENT
ARRANGE PHYSICAL FACILITIES
REVIEW AND SET UP MATERIALS
MONITOR THE CURRICULUM
EVALUATE
REVISE

Figure 13

plan each lesson in detail; then design a system to coordinate student flow through these lessons. The system will prevent the students from working themselves into bottlenecks and deadends. The process described here is an expansion of Phases Five and Six from the Eleven Phase Model presented in the section concerning selection and organization of vocational education content, training and materials. This procedure will enable the instructor to add or prepare materials for a given program without disturbing the flow of the system.

Correcting Weaknesses or Malfunctions in Acquired Materials

Rationale:

Materials purchased from any source are not likely to be a direct fit into the local curriculum. Tasks that relate directly to the local labor market may be missing; packages may be weak or incomplete; testing procedures may be inadequate; audio-visuals may be faulty. Mass produced materials cannot be custom designed to fit a particular school or program. Any purchased material, regardless of the source, will require adaption to the local environment and some general repair work. Remember, you are acquiring a volume seller not a Rolls Royce. It was designed for someone else's situation and needs, not yours.

For the reasons enumerated above, the vocational administrator and instructor must assume responsibility for adapting the materials and for making them functional in their school setting.

Overcoming Typical Installation Problems

The vocational administrtor's advice is sought out by the classroom/lab manager for many reasons. Unfortunately, too often this advice must "bail" a teacher out of a crisis situation rather than deal with a problem

which may prevent a future crisis. Presented in this section is a list of problems which have occurred in the past. Along with the problems are some possible solutions the administrator may use for "bailing" purposes or preventive measures.

It is not uncommon to purchase individualized instructional materials which contain problems. Often the seller is aware of many of these problems and tries to make amends for them. Problems naturally arise when materials are prepared for teachers, by teachers, and in a rush situation. In the situation of public agencies, materials are also prepared strictly on a cost recovery basis where there is no profit incentive such as with commercial publishers.

Problem	Solution
Missing Slides	Often these are descriptive or title slides. This simply requires that the instructor obtain a blank slide from a camera shop or (if available) the graphic arts department and write in the title with a permanent type (not water base) felt marker pen. If the slide was to have been a picture of some type of equipment, insert a blank slide with an explanation on it as a temporary measure. This is very important because tapes advance slides automatically and synchronization between voice and picture will be affected because of a missing slide. Slides are normally made with a 35mm camera, however, and replacement slides may be made with almost any type of popular camera that is capable of making color slides.
Faulty Tapes	Since large numbers of tapes are duplicated at one time and it is impossible for the producer to check them all, audio problems will occur. When there is a problem first

check the tape head in the playback unit. If the head appears aligned and clean and the recording continues to malfunction, request a replacement.

Written Materials Problems encountered with written materials are rare and when they do occur they are related to AV materials which are missing or faulty. However, the instructor may on occasion need to add to a written unit or prepare a missing package. Most instructors can do this with time and support from the administrator.

Preventive Medicine

A learning manager utilizing individualized instruction will have problems enough without the obstacle of materials logistics. Some of the procedures and techniques used by successful instructors may be learned only by experience. There are however, certain tricks of the trade that an administrator may share with the instructors to assist them in getting off to a good start regarding new materials.

When new materials arrive the instructor's first task should be an inventory to make sure everything was shipped. When inspecting slides don't stop with simply counting boxes. Open the boxes and, using a felt marker pen, draw a large X across the slides (see figure 14). If the box of 125 slides should spill it will be much easier to put them in the correct order again. The next step is to place slides into a permanent tray and to preview all materials using the script and accompanying tape. Only after the instructor is satisfied that all materials are accounted for should the slides be numbered. Do not assign this work to students; the instructor must personally attend to this duty.

In the preview process listen to the completed tapes and make sure they are audible through the entire program. Check the tapes not only for

clarity but also for cueing. They should advance the slides automatically. A safeguard which will prevent recording over cassette tapes is to remove the tabs at the end of the tape cartridge (see figure 15). This may also assist in preventing any potential pilferage problems.

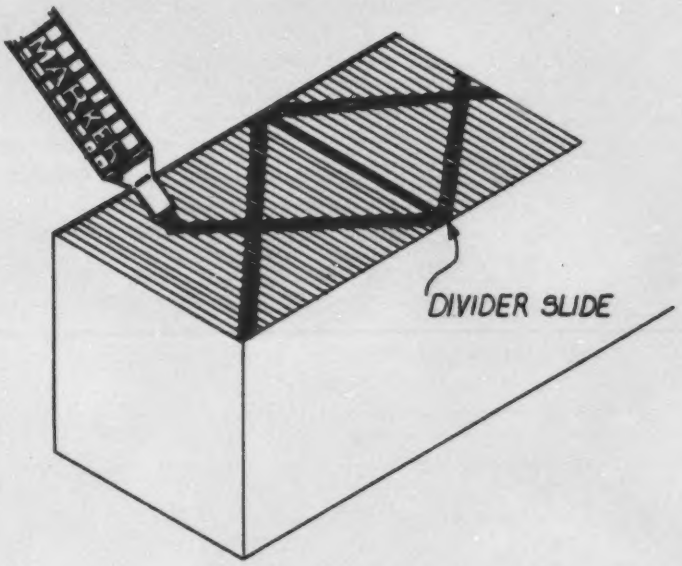


Figure 14

Coding

Another type of preventive medicine which may save countless interruptions when students begin to use materials is a numbering and coding system. Slides should be numbered in the top left corner so that all numbers will be visible in the tray. Remember that the slide's top left corner in the tray is not the same top left corner when the slide is viewed by holding it up to light. Number only after a previewing with slides in the tray.

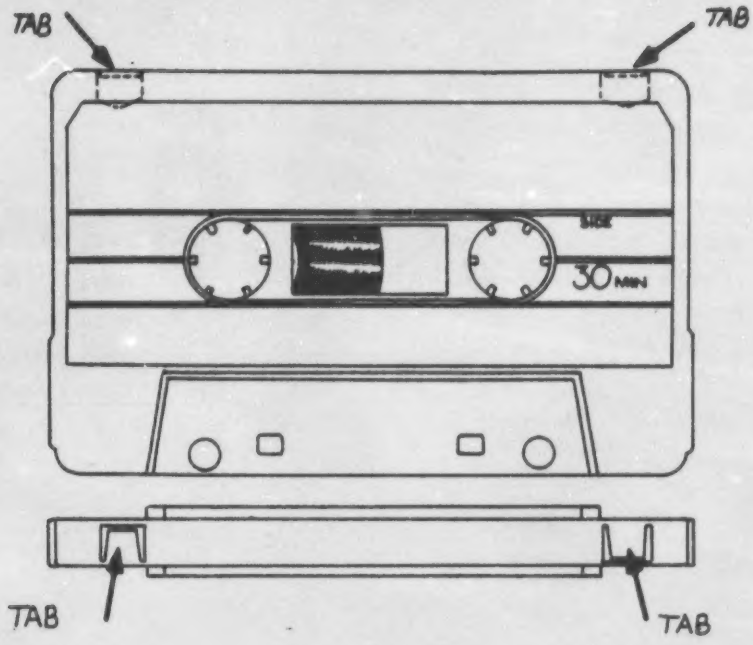


Figure 15

The numbering system should use the codes indicated in the written materials. As examples: metals program would be numbered VM-1, VM-2, ... indicating vertical mills slides. Slides should always be stored in trays to ensure ease of use. Each slide tray and its box should also be labeled. The simplest method would be to code each box and tray the same as the written materials are coded. As an example, RE 1-49 would indicate Radiographic Equipment slides 1 through 49. Boxes should have this indicator code plus a large sequence number to help keep them in order (see figure 16).

Tapes should be numbered in the same fashion as the slide trays and boxes. Place a number on the cassette cartridge and the ID card in the plastic sleeve. To prevent accidental removal of the ID card, remove the perforated tab on it.

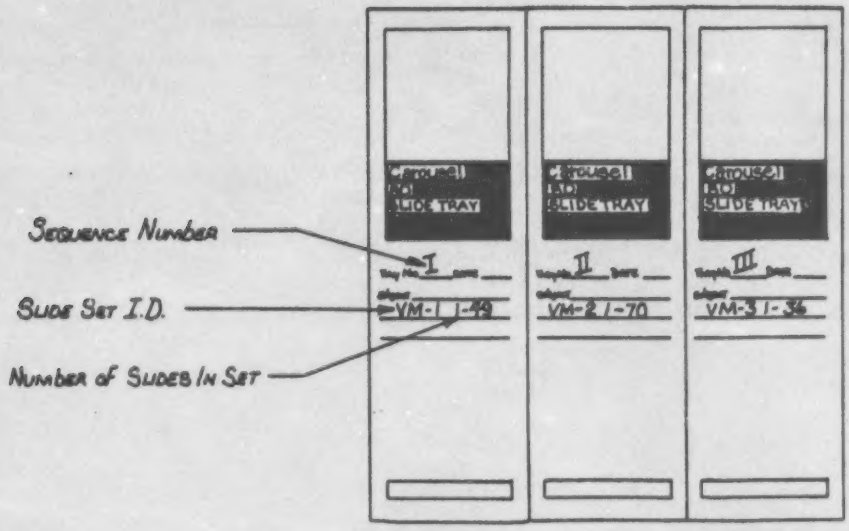


Figure 16

Storage problems have to be solved on the local level. Two potential solutions are (1) a custom made storage shelf similar to that illustrated in figure 26 on page 110 and, (2) slides' boxes stored on conventional bookshelves and tapes stored in an index card file cabinet or other type of commercial cassette storage cabinet.

Many individualized instruction programs are not totally self contained. The instructor should obtain all text books required in the program. These titles will be named in the instructor's guide which also lists publishers, audio-visuals, commercial vendors and any other information needed to implement the program.

Student manuals, one for each student, must also be obtained. These manuals, similar to workbooks, may be given to the students as a form of consumable supplies or, as an alternative, the student may be given the

option of (1) keeping a loose leaf notebook (hand or machine copying necessary pages of the student manual) or (2) purchasing a copy of the student manual (usually two or three dollars).

As a final word concerning the installation of new materials: the instructor should not try to change materials without first using them with students. What may at first glance appear cumbersome, awkward or poorly detailed may in practice work very well. Encourage the learning managers to give new materials a chance before discarding them.

Introduction

This section is designed with the classroom/lab manager in mind. The vocational administrator may use the information found here to assist the front line teachers in the everyday management problems faced in the classroom. Individualized instruction has influenced the arrangement and content of materials presented here. There are, however, other learning management methods to which this section would also apply.

Included in this section on classroom management are suggestions concerning safety in the classroom. Also discussed is the relationship of safety and OSHA standards, administrative liability and the administrator's influence. Several forms which should be helpful in implementing an effective safety program are presented.

The topic of live work is given only a brief treatment; however, valuable policy examples are included. The reader is given a live work rationale, several management techniques and some cautions.

Budgeting time and money is a problem every administrator faces. The Handbook suggests a potential solution to budgeting, a technique which begins at the classroom front line level. As there is not a prescribed budget method that must be used in all cases, neither is there a single best method to induce motivation and student discipline. The classroom management section discusses how motivation may be used as a discipline tool and the relationship between the two.

As suggested in other sections, the logistics of an individualized curriculum can create problems if counteraction is not taken. The topic ARRANGING THE PHYSICAL FACILITIES FOR AN INDIVIDUALIZED VOCATIONAL PROGRAM presents, in a concise format, information covering everything from furniture selection to spare parts.

Classroom/Lab Safety and OSHA

There really is no need to mention safety to the vocational administrators. It is a factor that permeates all of vocational education. As students participate in programs that have a variety of powerful and sometimes, if improperly used, dangerous machines, the concept of safety must be kept in the front of the administrator's mind just as it is kept in the front of the students'. The simplest exercise in safety is to always keep all parties conscious of the need for it. Safety can become a more serious concern in the individualized or open laboratory with a number of students working in a variety of areas with a variety of tools all at the same time. Certain precautions must be taken to solve this concern, and most of this should be done in the form of policy statements, safety devices on the machinery and the like before students are admitted into the classroom and laboratories.

It would be advantageous for the vocational administrator to become familiar with the Occupational Safety and Health Administration regulations. This section will be devoted to explaining why it would be a good idea to voluntarily comply with OSHA regulations, the relationship of OSHA and safety in the classroom/lab, where information may be obtained, and a few brief words about teacher-administrator school liability.

If an educator is to voluntarily comply with OSHA standards, he/she must first obtain an interpretation of the regulations. This may come in many forms:

(1) The Federal Register which lists health and safety regulations for all businesses and industries.

(2) Publications, specifically pamphlets and brochures, produced by OSHA for each specific type of business or industry.

(3) Interpretations of the act made by universities or other agencies such as OSHA Handbook for Vocational and Technical Education Teachers, (1974, University of Illinois).

The vocational educator may use these sources of information to set up the laboratory or classroom in strict compliance with the OSHA safety and health standards. When a student is exposed to a learning environment where OSHA standards are adhered to, not only will he/she learn in safe and healthy conditions but also he/she will be better prepared to deal with OSHA upon entering the work force.

Safety is alive and well in most vocational classroom/laboratories. In those where it is not practiced, or those new programs just starting up, the OSHA guidelines provide an excellent source of information for implementing good safety procedures and precautions.

The regulations set forth by OSHA are detailed in respect to practically every conceivable work activity. Some standards in the Act only apply to certain industries, such as construction. These are "vertical" standards with which a school or its faculty would not normally be concerned with. However, there are numerous activities and situations which apply to all industries and occupations. These all-encompassing regulations, known as "horizontal" standards, apply to all business and industries (except state, county or municipal employers).

When one considers the penalties imposed on employers by OSHA for noncompliance, a natural question is to ask is whether a supervisor, coordinator or faculty member is considered an employer. This is a difficult question to answer; however the imminent danger section of the act refers to "a workplace under your ownership, operation, or control." It would seem therefore that a faculty member and ultimately his/her supervisor would be held responsible when a violation occurs in an area under the control of that faculty member. The problem is that the act is concerned with the activities of the employee (the faculty member), not th students. OSHA regulations indicate that the school has the responsibility to provide safety precautions for the faculty member, not the student.

Do not misconstrue this passage as saying that the vocational teacher or administrator does not have liabilities. The OSHA regulations are clearly stated and the vocational administrator would best advise his/her faculty members to comply voluntarily with them and to establish stringent safety rules. The point is that the Occupational Safety and Health Administration does not normally inspect schools. This is because they are controlled by state, county, and municipal governments which do not come under the purview of the Occupational Safety and Health Act.

The significance of OSHA has changed to some degree due to recent judicial decisions. Further questions regarding whether injury to students constitutes a basis for prosecution under the act await further interpretation. As previously implied, the act is designed for the protection of employees and it would seem that strict interpretation would not include students.

Professional liability is a touchy situation. Concerning this liability, failure to comply with OSHA regulations could be looked upon by some as being reason enough, in the case of an accident, to bring civil action against the educator on the grounds of negligence. Cases at point would be the situations where instructors failed to provide guards and other protective devices on machinery, failed to provide personal protective devices for students, or had general poor housekeeping practices. On the grounds of potential liability situations, it would be wise for the teacher and the administrator to become familiar with OSHA and other state or municipal regulations relative to the safety of students.

Administrative Liability

This section will specifically cover tort liability of administrators. It is not intended here to give legal advice or recommendations to vocational administrators; instead the following is designed to promote an awareness of legal terms and where practical, their implications.

The law of torts is an area of law aimed at compensation for losses suffered. The administrator does not have to break a statute to be liable. His/her liability can be based solely on conduct that is socially unreasonable. The purpose of this law is specifically to provide compensation for injuries caused by another person's negligent conduct. Negligence in this case would be lack of conformance to certain standards of conduct for the protection of others against unreasonable risks. Conforming to certain standards of conduct can also be known as a duty. Negligence can also occur as the result of a breach of duty. The standards for care (or duty) required by the vocational administrator or classroom manager vary with both the age and the capacity of the student.

There are some terms the vocational administrator should be familiar with that have a direct bearing on his/her liability. The degree of interpretation or existence of these legal concepts is different for most states. It would therefore behoove the administrator to seek interpretative assistance from local sources.

1. Common Law Rule of Immunity - implies that agencies of government are not liable for torts.
2. Save Harmless Statutes - where a school district is allowed or required to assume the expenses incurred by a faculty member involved in a civil action arising from a school related negligent act.
3. In loco parentis - in place of parent. Faculty members have some of the rights and responsibilities of the parent.
4. Tort - A civil wrong for which the law provides a remedy.
5. Duty - An obligation, recognized by law, where one person must meet a standard of conduct toward another person.
6. Harm - A hazardous condition that may exist under certain circumstances. A duty exists if harm is foreseeable; a later injury does not have to have been foreseen, as long as a general harm was foreseeable.

Administrator's Influence on Safety

The vocational administrator has the basic responsibility of organizing a safety program. This responsibility of planning details of the safety program may be delegated to the individual classroom/lab managers but coordination must come from the vocational administrator. The administrator must not only delegate responsibility and approve plans but he/she should also seek endorsement from top officials of any accident prevention program. This top level endorsement can be coupled with a public relations plan to inform the community of the value of a safety program and the concern of the school. Ensuring community wide support will place safety in a prominent spot in industry, the home, as well as the schools.

The vocational administrator must have a philosophy or a set of beliefs that permeates the entire structure of the program. These beliefs must be transfered to the classroom/lab managers in order to genuinely inspire and motivate them to place safety in its proper position.

Problem Areas

Unsafe practices and hazardous conditions may exist in a school simply because of administrative neglect. The following is a partial list of problem areas affecting student safety that require administrative attention:

1. Lack of organized safety procedures such as accident report forms, shop inspections, safety committees, and proper accident investigations.
2. Negligence in providing machine guards, adequate lighting and ventilation, first aid supplies and knowledge, and personal protection devices.
3. Lack of safety training for both students and classroom/lab managers.
4. Inadequate enforcement of established safety rules.
5. Improper investigation into the cause and responsibility of accidents.

Teacher Responsibility

The bottom line responsibility for safety implementation rests on the individual faculty member. The vocational administrator must not only influence staff members as to the importance of safety, they should also be prepared with a list of classroom/lab manager responsibilities and recommendations:

1. Lab facilities should be arranged to provide maximum safety.
2. Instruction on safety should be an integral portion of every course.
3. Foster cooperation in accident prevention.
4. Keep up to date on safety practices in the subject field.
5. Personally follow all safety practices --set a safety example.
6. Carry out administration or safety committee recommendations for improving safety instruction.
7. Make recommendations to the administrator or safety committee for improving the safety environment.
8. Insist on use and maintenance of necessary personal protective equipment.
9. Develop and enforce safety rules.

Safety Summary

Vocational education courses are not inherently dangerous, However, the lack of safety policies, the lack of enforcement of those and typical student carelessness may produce some unhappy results for the vocational administrator and instructor. A sensible first step for the vocational administrator is to require all instructors to complete the Red Cross First Aid Course or its equivalent. The vocational administrator should also meet this requirement. In conjunction with this training, an emergency plan should be prepared to deal with a variety of potential accidents.

The following* are sample forms and item lists to be considered by the vocational administrator. The Emergency First Aid Plan, Accident Report Form and the list of Items to Consider for a Safety Inspection were contributed by Augusta Area Technical School, Augusta, Georgia. The American Vocational Association in conjunction with the National Safety Council prepared the safety checklist presented. Those vocational administrators interested in ordering the National Standard School Shop Inspection Checklist should note that the stock number (429.73) presented on the form is correct but the current price at this printing is $1.57 for 50 copies. The National Safety Council address has also changed to 444 N. Michigan Avenue, Chicago, Ill. 60611.

*Figures 17, 18, 19, and 20

Figure 17

EMERGENCY FIRST AID PLAN

AUGUSTA AREA TECHNICAL SHCOOL

AUGUSTA, GEORGIA 30906

Department _____

First Aid Contact Person _____

Ambulance Phone Number _____

Minor First Aid Treatment

1. Assess the situation; if no apparent medical attention is needed, give minor first aid.
2. Student should be advised that it is always safer to have injury checked by a physician.

Injury or Sudden Illness

In case of injury or sudden illness call or have another person call for an ambulance giving the following information:

1. Injured or ill person located at _____ campus _____ building, street address, phone number and name of person placing call.
2. Notify main office and campus coordinator.
3. Obtain student's hospital and physician preference. While help is being summoned, give immediate attention to the following first aid priorities.

   A. Do not leave student alone.
   B. Ensure that the victim has an open airway and give mouth-to-mouth or mouth-to-nose artificial respiration, if necessary.
   C. Control severe bleeding by applying pressure.
   D. Loosen constricting clothing.
   E. Do not move a victim unless it is necessary for safety reasons. Keep the victim in the position best suited to his condition or injuries; do not let him get up or walk about.
   F. Protect the victim from unnecessary manipulation and disturbance.
   G. Avoid or overcome chilling by using blankets or covers, if available. If the victim is exposed to cold or dampness, place blankets or additional clothing over and under him.
   H. Determine the injuries or cause for sudden illness. After immediate problems are under control:

      1) Find out exactly what happened. Information may be obtained from the victim or from persons who were present and saw the accident, or saw the individual collapse in the case of sudden illness.

2) Look for an emergency medical identification, such as a card or bracelet, which may provide a clue to the victim's condition.

3) If the victim is unconscious and has no sign of external injury, and if the above methods fail to provide identity, try to obtain proper identification either from papers carried in a billfold or purse, or from bystanders, so that relatives may be notified. (It is advisable to have a witness when searching for identification)

Above all, as a first aid person, you should know the limits of your capabilities and must make every effort to avoid further injury to the victim in your attempt to provide the best possible emergency first aid care.

Students are responsible for their own emergency and/or hospital expense if injured while on duty in the school or clinical area. Students may go to the hospital emergency room or own physician.

Filing of Accident Report

A report should be made on all student accidents. Follow the directions on accident report; in addition, a copy should be submitted to the safety director.

Figure 18

ACCIDENT REPORT FORM

AUGUSTA AREA TECHNICAL SCHOOL

AUGUSTA, GEORGIA 30906

Name of School_____ City_____ Date_____

Name of Injured_____ Grade_____ Age_____

Trade or Technical Program_____

Accident Occurred: Hour_____ Date_____ 19_____

Type if Injury:	Part of Body:	Type of Accident (x):
__Amputations	_____	__Striking against
__Bruises or contusions	_____	__Struck by flying object
__Cuts or lacerations	_____	__Struck by falling object
__Fractures or concussion	_____	__Caught in or between
__Foreign body in eye	_____	__Fall
__Sprains or strains	_____	__Overexertion
__(Other)	_____	__Contact with electric current
		__Burns or scalds
		__Infection
		__(Other)_____

Medical Attention (x): Name

__First Aid _____ Machine or tool involved_____

__Doctor _____ Damage to equipment_____

__Receiving Hospital _____ Hours lost from shop class_____

__Hospitalized _____

Days lost from School_____

Explain fully how the accident occurred (describe circumstances, what the student was doing, etc.

_____

_____

_____

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Did inadequate guarding contribute to accident? How?_____

What defective tool or equipment, if any, was at fault?_____

Was student using personal protective equipment required for the job?_____

Was instructor in room at time accident occured?_____

In your opinion, how could accident have been prevented?_____

_____

Signature_____
Instructor

Figure 19

ITEMS TO CONSIDER FOR A SAFETY INSPECTION

This list does not cover all conditions and is intended as a guide only. Each individual should develop a list of safety items pertinent to his or her instructional area of responsibility.

Automotive Repair and Body Shop

- Air compressors
- Battery carriers
- Exhaust and ventilation
- Cleaning solvents and paints
- Lifts - Hoists - Jacks
- Pits - Ramps
- Oil and grease on floor

Brick Masonry

- Scaffolds and ladders
- Elevators and hoists
- Proper clothing
- Lifting
- Mortar mixer
- Skin irritation from plaster
- Masonry saw

Child Development

- Work and play areas free of injurious objects
- Non-toxic art materials & toys
- Supervision
- Bicycles
- Playground - swings, slides see-saws, monkey bars

Classroom

- Lighting
- Ventilation
- Exits
- Storage
- Windows
- Aisles
- Furniture & Desks

Cosmetology

- Use of ultra-violet, infra-red and therapeutic lamps
- Handling of steam towels
- Skin lesions or erruptions
- Temperature of objects applied to scalp or skin
- Use of manicure implements

Dental Assistant

- Antiseptic security
- Control
- Posture
- Sterilization
- Facilities
- Work areas
- Rest periods

Electrical - Electronics

- High voltage
- Grounding
- Shock safety floor mats
- Solder burns
- First Aid Kit
- Fuses
- Insulation

Food Service

- Dry hands before touching electrical appliances
- Scalding from hot water or steam
- Slicers, knives, can openers
- Use dry pot holders
- Tongs to handle hot food
- Waste disposal

Heating and Air Conditioning

- Open flames
- Freon gas
- Fire extinguishers
- Horseplay
- Truck dolly
- Drill press
- Work benches

Machine Shop

- Eye protection
- Machine overloads
- Use of push sticks
- Guards and markings
- Machines off when servicing
- Stock secure in machines
- Operating procedures

Nurses' Assistant

- Dress and cleanliness
- Laboratory procedures
- Body mechanics
- Sanitation methods
- Supply storage
- Fingernails

Printing

- Exposure
- Processing chemicals
- Dark room procedure
- Offset press operation
- Folding machines
- Cutters - Staplers
- Paper drill

Welding

- Acetylene and oxygen tanks
- Moving materials
- Smoking areas
- Goggles
- Objects too heavy
- Ample work space
- Electrical

Other

- Regulations
- Curriculum
- Age, class type
- Attitude
- Experience
- Capacity
- Job planning

Figure 20

NATIONAL STANDARD SCHOOL SHOP SAFETY INSPECTION CHECK LIST

Prepared by the Joint Safety Committee of the
AMERICAN VOCATIONAL ASSOCIATION — NATIONAL SAFETY COUNCIL

_____ Date _____

_____

INTRODUCTION

A safe environment is an essential part of the school shop safety education program. The safe environment will exist only if hazards are discovered and corrected through *regular* and *frequent* inspections by school personnel—administrators, teachers and students. Safety inspections are to determine if everything is satisfactory.

Inspections may be made at the request of the board of education, the school administration or upon the initiative of the teacher. Some communities have drawn upon the cooperative service of professional safety engineers, inspectors of state labor departments, insurance companies and local safety councils to supplement and confirm inspections by school personnel.

The National Standard School Shop Safety Inspection Check List, recommended by the President's Conference on Industrial Safety is an objective inspection procedure for the school shop.

DIRECTIONS

WHO INSPECTS?

This will depend upon local policies. It is recommended, however, that shop teachers, and students—the student safety engineer and/or student safety committee—participate in making regular inspections. This not only tends to share responsibility but stimulates a broader interest in the maintenance of a safe school shop.

WHEN TO INSPECT?

As a minimum, a safety inspection should be made at the beginning of every school term or semester. More frequent inspections may be advisable.

HOW TO INSPECT?

Inspections should be well planned in advance.

Inspections should be systematic and thorough. No location that may contain a hazard should be overlooked.

Inspection reports should be clear and concise, but with sufficient explanation to make each recommendation for improvement understandable.

FOLLOW-UP

The current report should be compared with previous records to determine progress. The report should be studied in terms of the accident situation so that special attention can be given to those conditions and locations which are accident producers.

Each unsafe condition should be corrected as soon as possible in accordance with accepted local procedures.

A definite policy should be established in regard to taking materials and equipment out of service because of unsafe conditions.

The inspection report can be used to advantage as the subject for staff and class discussion.

CHECKING PROCEDURE

Draw a circle around the appropriate letter, using the following letter scheme:

S — Satisfactory (needs no attention)
A — Acceptable (needs some attention)
U — Unsatisfactory (needs immediate attention)

Recommendations should be made in all cases where a "U" is circled. Space is provided at the end of the form for such comments. Designate the items covered by the recommendations, using the code number applicable (as B-2).

In most categories, space is provided for listing of standards, requirements or regulations which have local application only.

A. GENERAL PHYSICAL CONDITION

1. Machines, benches, and other equipment are arranged so as to conform to good safety practices ..... S A U
2. Condition of stairways ..... S A U
3. Condition of aisles ..... S A U
4. Condition of floors ..... S A U
5. Condition of walls, windows, and ceiling ..... S A U
6. Illumination is safe, sufficient, and well placed ..... S A U
7. Ventilation is adequate and proper for conditions ..... S A U
8. Temperature control ..... S A U
9. Fire extinguishers are of proper type, adequately supplied, properly located and maintained ..... S A U
10. Teacher and pupils know location of and how to use proper type for various fires ..... S A U
11. Number and location of exits is adequate and properly identified ..... S A U
12. Proper procedures have been formulated for emptying the room of pupils and taking adequate precautions in case of emergencies S A U
13. Lockers are inspected regularly for cleanliness and fire hazards. S A U
14. Locker doors are kept closed ..... S A U
15. Walls are clear of objects that might fall ..... S A U
16. Utility lines are properly identified ..... S A U
17. Teachers know the procedure in the event of fire including notification of the fire department and the evacuation of the building. S A U
18. Air in shop is free from excessive dust, smoke, etc. .... S A U
19. _____ S A U
20. _____ S A U
21. _____ S A U
22. _____ S A U
23. Evaluation for the total rating of A. GENERAL PHYSICAL CONDITION ..... S A U

B. HOUSEKEEPING

1. General appearance as to orderliness..... S A U
2. Adequate and proper storage space for tools and materials. S A U
3. Benches are kept orderly..... S A U
4. Corners are clean and clear..... S A U
5. Special tool racks, in orderly condition, and provided at benches and machines..... S A U
6. Tool, supply, and/or material room is orderly..... S A U
7. Sufficient scrap boxes are provided..... S A U
8. Scrap stock is put in scrap boxes promptly..... S A U
9. Materials are stored in an orderly and safe condition.. S A U
10. A spring lid metal container is provided for waste and oily rags. S A U
11. All waste materials and oily rags are promptly placed in the containers..... S A U
12. Containers for oily rags and waste materials are frequently and regularly emptied..... S A U
13. Dangerous materials are stored in metal cabinets..... S A U
14. Machines have been color conditioned..... S A U
15. Safety cans are provided for flammable liquids..... S A U
16. Bulk storage of dangerous materials is provided outside of the main building..... S A U
17. A toe-board or railing around a mezzanine used for storage or washing facilities..... S A U
18. Materials are stored in an orderly and safe condition on this mezzanine..... S A U
19. Flammable liquids are not used for cleaning purposes S A U
20. Floors are free of oil, water and foreign material..... S A U
21. Floors, walls, windows, and ceilings are cleaned periodically. S A U
22. _____ S A U
23. _____ S A U
24. _____ S A U
25. _____ S A U
26. Evaluation for the total rating for B. HOUSEKEEPING S A U

C. EQUIPMENT

1. Machines are arranged so that workers are protected from hazards of other machines, passing students, etc..... S A U
2. Danger zones are properly indicated and guarded..... S A U
3. All gears, moving belts, etc., are protected by permanent enclosure guards..... S A U
4. All guards are used as much as possible..... S A U

C. EQUIPMENT (continued)

5. All equipment control switches are easily available to operator. S A U
6. All machines are "locked off" when instructor is out of the room. S A U
7. Brushes are used for cleaning equipment..... S A U
8. Nonskid areas are provided around machines..... S A U
9. Machines are in safe working condition..... S A U
10. Machines are guarded to comply with American Standards Association and local state code..... S A U
11. Adequate supervision is maintained when students are using machines and dangerous tools..... S A U
12. Tools are kept sharp, clean and in safe working order S A U
13. All hoisting devices are in safe operating condition... S A U
14. Machines are shut off while unattended..... S A U
15. Adequate storage facilities for tools, equipment, etc., not in immediate use..... S A U
16. _____ S A U
17. _____ S A U
18. _____ S A U
19. _____ S A U
20. Evaluation for the total rating for C. EQUIPMENT.. S A U

D. ELECTRICAL INSTALLATION

1. All switches are enclosed..... S A U
2. There is a master control switch for all of the electrical installations..... S A U
3. Electrical outlets and circuits are properly identified.. S A U
4. All electrical extension cords are in safe condition and are not carrying excessive loads..... S A U
5. All machine switches are within easy reach of the operators. S A U
6. Electrical motors and equipment are wired to comply with the National Electric Code..... S A U
7. Individual cut-off switches are provided for each machine. S A U
8. Machines are provided with overload and underload controls by magnetic pushbutton controls..... S A U
9. No temporary wiring in evidence..... S A U
10. _____ S A U
11. _____ S A U
12. _____ S A U
13. _____ S A U
14. Evaluation for the total rating for D. ELECTRICAL INSTALLATION..... S A U

E. GAS

1. Gas flow to appliances is regulated, so that when appliance valve is turned on full, the flames are not too high..... S A U

2. Gas appliances are properly insulated with asbestos or other insulating material from tables, benches, adjacent walls, or other flammable materials ..... S A U

3. No gas hose is used where pipe connections could be made. S A U

4. Gas appliances have been adjusted so that they may be lighted without undue hazard..... S A U

5. Students have been instructed when lighting gas appliances to light the match first before turning on the gas..... S A U

6. There are no gas leaks, nor is any odor of gas detectable in any part of the shop..... S A U

7. Shop instruction has been given concerning the lighting of gas furnaces operating with both air and gas under pressure.. S A U

8. When lighting the gas forge, goggles are worn..... S A U

9. When lighting the gas furnace, the following procedure is used: (a) light the match; (b) turn on the gas; (c) drop the match in the hole in top of the furnace..... S A U

10. In shutting down the gas furnace, the gas valve is closed before the air valve..... S A U

11. _____ S A U

12. _____ S A U

13. _____ S A U

14. _____ S A U

15. Evaluation for the total rating for E. GAS..... S A U

F. PERSONAL PROTECTION

1. Goggles or protective shields are provided and required for all work where eye hazards exist..... S A U

2. If individual goggles are not provided, hoods and goggles are properly disinfected before use..... S A U

3. Shields and goggles are provided for electric welding.. S A U

4. Rings and other jewelry are removed by pupils when working in the shop..... S A U

5. Proper kind of wearing apparel is worn and worn properly for the job being done..... S A U

6. Leggings, safety shoes, etc., are worn in special classes such as foundry, etc., when needed..... S A U

7. Respirators are provided for dusty or toxic atmospheric conditions such as when spraying in the finishing room..... S A U

8. Provisions are made for cleaning and sterilizing respirators. S A U

9. Students are examined for safety knowledge ability.. S A U

10. Sleeves are rolled above elbows when operating machines. S A U

11. Clothing of students is free from loose sleeves, flopping ties, loose coats, etc. ..... S A U

12. _____ S A U

F. PERSONAL PROTECTION (continued)

13. _____ S A U

14. _____ S A U

15. _____ S A U

16. Evaluation for the total rating for F. PERSONAL PROTECTION. S A U

G. INSTRUCTION

1. Shop Safety is taught as an integral part of each teaching unit. S A U

2. Safety rules are posted particularly at each danger station. S A U

3. Printed safety rules are given each student..... S A U

4. Pupils take a safety pledge..... S A U

5. Use of a safety inspector..... S A U

6. Use of a student shop safety committee..... S A U

7. Use of safety contests..... S A U

8. Motion and/or slide films on safety are used in the instruction. S A U

9. Use of suggestion box..... S A U

10. Use of safety tests..... S A U

11. Use of safety posters..... S A U

12. Talks on safety are given to the classes by industrial men. S A U

13. Tours are taken of industrial plants as a means of studying safety practices ..... S A U

14. Periodic safety inspections of the shop are made by a student committee ..... S A U

15. Men from industry make safety inspections of the shop S A U

16. Student shop safety committee investigates all accidents S A U

17. A proper record is kept of safety instructions which are given, preferably showing the signature of student on tests given in this area ..... S A U

18. Rotate students on the Shop Safety Committee so that as many students as possible have an opportunity to participate... S A U

19. _____ S A U

20. _____ S A U

21. _____ S A U

22. _____ S A U

23. Evaluation for the total rating of G. INSTRUCTION S A U

H. ACCIDENT RECORDS

1. There is a written statement outlining the proper procedure and if a student is seriously hurt..... S A U

2. Adequate accident statistics are kept..... S A U

3. Accidents are reported to the proper administrative authority by the instructor ..... S A U

H. ACCIDENT RECORD (continued)

4. A copy of each accident report is filed with the State Department of Education ..... S A U

5. Accident reports are analyzed for instructional purposes and to furnish the basis for elimination of hazards..... S A U

6. _____ S A U

7. _____ S A U

8. _____ S A U

9. _____ S A U

10. Evaluation for the total rating of H. ACCIDENT RECORDS. S A U

I. FIRST AID

1. An adequately stocked first aid cabinet is provided... S A U

2. The first aid is administered by a qualified individual S A U

3. The school has individuals qualified to administer first aid. S A U

4. _____ S A U

5. _____ S A U

6. _____ S A U

7. _____ S A U

8. Evaluation for the total rating of I. FIRST AID.... S A U

RECOMMENDATIONS

Code No.	

For additional copies in packets of 50 send $1.00 to National Safety Council, 425 North Michigan Avenue, Chicago, Ill. 60611

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Live Work

Live work is both a boon and a nemesis to vocational education. There is a tendency by both local school personnel and the general public to exploit the programs. The administrator must be mindful that the purpose of vocational education is student training, not the operation of a cheap fix-it shop. It is the administrator's responsibility to convey this point to the school system and to the public in general. This can be done by establishing and enforcing a comprehensive live work policy.

Although some live work is necessary, too much can be devastating in an individualized program. In an individualized environment each student is working toward mastery of a specific task. This mastery requires the student to process through an organized set of learning activities. If a live job relates directly to the assigned task, it could be substituted for one learning activity. The risk here, however, is that the student has not had sufficient preparation or experience to do the job alone. Consequently, the instructor will become his/her helper. All other students are not at least partially deprived of instruction because the instructor has become a worker.

The appropriateness of live work varies from program to program. The amount of time allotted for this purpose must be carefully controlled by the administrator and faculty. Indiscriminate acceptance of every job that comes along will consume all instructional time and totally immobolize an individualized program. The sample live work policies that follow should provide the administrator with some basic guidance.

SAMPLE "Live Work" Policies

Athens Area Vocational-Technical School

Athens, Georgia

POLICIES AND PROCEDURES GOVERNING "LIVE" PRODUCTION JOBS

One of the most meaningful training vehicles is the bona fide production job, a job that will eventually be used by a customer. However, such jobs pose serious problems in a public school shop, problems which require rigid regulations as indicated below:

1. Live jobs must provide training for the student. This training can range from skill perfection to developing work habits or customer relation experiences.

2. All materials, parts, and supplies used or required in such live work must be paid for by the customer at school cost. Under no circumstances can the school give away public funds or property through this type training. There shall be no cost on labor.

3. All purchases for items needed to do such production jobs must be processed through the school accounts. Under no circumstances should instructors place themselves in a vulnerable position by buying and reselling to customers of the school shop.

4. All monies received from customers must be receipted on an official school receipt and deposited in the school account.

5. All live work must be done by the student. The only time an instructor is to do a live job is when it is used for demonstration purposes.

6. Under no circumstances shall the instructor or student receive money, rewards, benefits, or in any way personally profit from such work, either directly or indirectly. To do so is in direct violation of state law which probihits the use of public property for personal gain.

7. The following policies concerning the purchase of parts are intended to protect shop teachers from any possible inference that they, or students are using public property for personal gain. This can only be done by conducting our business through the school's accepted financial and accounting procedures. By doing so adequate audit is always possible, should the need arise.

   a. Teachers will be allowed to purchase parts at school cost for live work. However, a purchase order must be obtained and given to the vendor when the order is placed.

b. Any items needed for the general operation of the shop programs or for instructional purposes must follow the usual procedure which includes administrative approval prior to ordering.

8. Customer Supplied Parts - For information concerning Customer Supplied Parts, check individual departmental policies.

9. What Work or Jobs May be Accepted

   a. Individual instructors may only accept work from Athens Tech Staff and Students. Other live work is subject to the approval of the Director.

   b. All live work must enhance the students' current training activities.

10. How Work or Jobs Will Be Received

   a. Every "live" production job will be written up on the official school work order form at the time the job is accepted. This work order is to show what instructor accepted the job, the customer's name, address, telephone number, and the nature of the work to be performed.

11. Financial Responsibility

   All work is on a cash and carry basis. So far as possible, the customer should be given a fair estimate of his possible expenditure, before the work begins. After the work has begun and investigation reveals the cost will exceed your estimate by $10 or more, the customer should be consulted and his O.K. obtained before proceeding. By all means, the customer is to understand he must pay all charges due before receiving his goods. Any work delivered without being paid for will become the instructor's liability.

12. Prices to Charge

   a. In cases where there are parts and materials used in performing the work, they are to be charged to the customer at school cost.

   b. In cases where there are no parts or materials, the instructor should charge the established flat rate to cover incidental items such as rags, solvent, tape, etc. Flat rate will be established annually during September after recommendation by the instructor and approval by the Director.

Classroom/Lab Budgeting

The classroom/lab budget should be built from a series of questions:

1. What is the purpose and objective of the program (i.e. what level of workers do you expect to produce)?
2. What is the current and anticipated enrollment for the class?
3. Will there be any unique costs resulting from enrolling special student populations?
4. What is the anticipated tool loss (replacement cost)?
5. What is the age and functional status of the shop equipment?
6. Are new machines required to meet changing labor market demands or to upgrade obsolete equipment?
7. What will supplies cost?
8. What is the maintenance and operating cost for the classroom lab?
9. What is the cost for instructor and aides (if applicable)?
10. Will any travel cost be involved?
11. What are the sources of cost recovery and direct support for consumable supplies?
12. What revenue may be anticipated from the state department of education, the local school system and from live work.

One method for establishing a functional classroom/lab budget is to rank the above questions in a priority order, then find the most accurate answers available. A vocational administrator must have adequate knowledge to pick the best course of action concerning public school expenditures and allocations. Answering the above questions will establish the basis for classroom level budget which will in turn be used to build the overall school budget.

In the following paragraphs the basic building block, a classroom/lab budget, is described. It uses the logic of economics to help determine the best methods of identification, analysis, and choosing alternatives. By making use of the learning manager's input from the classroom level the administrator's budget making tests will certainly be eased.

A key element in a classroom/lab budget system is the development of goals and objectives. These are necessary to justify the existence of the system. In order to develop meaningful goals and objectives the classroom manager may wish to consult any of a number of texts on the subject. The simplest procedure, however, is to rely on the goals and objectives prepared for the overall curriculum plan.

The planning process also plays an important role in the classroom/lab budgeting procedure. Planning in this case is simply the method used by the classroom manager to adapt his/her goals, priorities, and resources to changing school and community needs. Defining objectives is the first step in planning and it concludes by suggesting procedures for attaining the objectives in an optimal fashion.

It should be noted that planning goes on all the time. Planning is a dynamic, continuous cycle with built in evaluation. Planning should be viewed as flexible and able to change as requirements for change are discovered by the learning manager.

In a classroom/lab budget the output of all budget activities is the budget document. The budget is based on program results rather than line items in an accounting system. The classroom/lab budget looks at the effectiveness of programs in terms of cost versus resources consumed and objectives met. The educator may then justify a program in layman's terms to any interested group.

These are some of the highlights of the classroom/lab budget cycle:

1. Preparation - at the classroom level
2. Presentation - to supervisor, coordinator, advisory board, etc.
3. Adoption or authorization
4. Administration or execution
5. Appraisal (evaluation)

In many educational institutions the planning portion of curriculum development is the missing or weak link in successful program operation. The classroom/lab budget re-emphasizes efficient program operation as it demands planning and programming to develop curricula. Some schools simply go to the previous year to decide what they need for the coming year. Although that method is functional, using a scientific system such as the classroom/lab budget provides better allocation and an analysis of results is possible.

The main goal of the classroom/lab budget planning system is to simplify and improve data by examining the costs and benefits of alternative ways of attaining classroom lab objectives and providing a method for measuring the output to help improve accomplishment of the chosen goals.

How does the manager of classroom activities determine whether to allocate x dollars to activity A instead of activity B? The classroom/lab budget planning system suggests use of economic analysis. This analysis is based on objective criteria to facilitate the optimal allocation of classroom/lab funds among competing goals within a program. The logic of the classroom/lab budget planning system is simple: "How much am I going to spend?" The answer is found by looking at the utility of the program--"What good is it!"

The following are some distinguishing features of a program budget:

1. Explicit statements of desired outcomes (objectives) are an integral part of the classroom/lab budget.

2. Budget items are organized around major points in the program.

3. Expenditures or operating costs are organized around program elements.

4. Benefits as well as costs are exhibited for major points.

5. There is a multi-year costing framework projecting new classroom/lab resource demands for up to five years.

6. Information is organized to facilitate resource allocation decisions by the classroom manager.

The Model

The chart on page 98 outlines a classroom/lab budget planning model. In order to clarify the model the chart has been divided into three columns. The left column describes the four inventory steps for the educational system (what you have to work with). The center column identifies a basis for developing strategies (organizing to get ready for the classroom/lab budget). The third column is concerned with program costs (both time and money) and procedures for evaluating the components of the system.

Budget Suggestions

1. Calculate potential numbers of students expected to enroll in the future. This can be estimated by considering:

   a. students in cluster programs
   b. students in prerequisite courses
   c. student interest shown during the past year
   d. relative expense of course to students
   e. conduct a student interest survey

2. Complete a course/program needs survey form. Completion of this form may begin in September and continue through this year as needs arise.

3. List needs in order of priority giving attention to those that are absolutely essential, needed or desirable. A likert rating scale may be developed to help in analysis.

4. Calculate cost of needs. Obtain updated cost estimates for supplies and materials. It may be advantageous to submit equipment specifications to manufacturers and ask for exact costs (bids).

5. Complete budget form with expenditure amounts and priorities listed. The focal point in this step is matching budget items with course/program objectives. If an item is necessary to achieve the objectives by all means include it. If it is not necessary some soul searching may be in order.

Figure 21

CLASSROOM/LAB BUDGETING MODEL

Inventory of System Components	Basis for Developing Strategies	Time and Money Management
. describe student population . describe basic resources personnel staff support facilities equipment supplies other . describe community profile socioeconomic demographic . define management system chain of command decision approval information reporting	. define broad goals . define operational objectives . identify classroom/lab activities . define courses . define course elements . develop course structure (group activities)	. determine resource requirements . determine cost of activities . estimate cost of program . establish relationships between component elements . determine criteria for effectiveness . determine measures for effectiveness . identify alternatives . evaluate alternatives

Implementation

In order to implement the classroom/lab budget in an expedient manner the following phases have been mapped out:

Phase 1 - Identify and clarify in operational terms the goals and objectives of the program as a whole and for each of its courses.

Phase 2 - Develop a format for the entire program and its courses (Flow Chart).

Phase 3 - Search for alternatives to the objectives of each course.

Phase 4 - Identify the type and magnitude of resources (human, fiscal, spatial, and material) demanded for the pursuit of each feasible alternative for a program objective.

Phase 5 - Analyze each alternative to a course.

Phase 6 - Decide on the alternative and related strategies to be pursued for each course.

Phase 7 - Prepare a budget for resources required based on decision rendered on alternatives.

Phase 8 - Appraise decisions rendered and the program budget prepared at the end of one or more quarters or semesters.

Phase 9 - Recycle to improve and refine the classroom/lab budget plan.

Preparing the Budget

In many school systems before purchasing equipment, materials and supplies for a classroom/lab a budget must be prepared. The budget should be justifiable and realistic in scope. Based on the objectives set for the course or program the budget serves the function of controlling course expenditures. As time passes and needs are further determined, a budget (both for time and funds) may be modified.

Most schools or districts have procedures and forms that facilitate budget making. However, alone these procedures and forms may not be compatible to the classroom/lab budget. The following suggestions and forms take into consideration a budget based on program or course objectives.

BUDGET FORM (current budget)

Program_____

Course_____

Quarter/Year_____

Date	Supply/Material/Equipment	Budgeted	Spent	Balance

Figure 22

BUDGET FORM (work sheet)

Please list below materials, supplies and equipment needed in the classroom/lab. This form may be used as a worksheet to prepare end of year budget proposal and current year budget allocations.

Item needed_____

_____

Priority_____

Estimated Cost_____

Actual Cost_____

Justification according to objective_____

_____

_____

Figure 23

BUDGET FORM (proposal)

Budget Summary

Using notes and work sheets from the present fiscal year propose a budget considering program/course objectives

Expected Revenue		
Live Work Revenue		
State Allocations		
Local Allocations		
Student Assessments		
Other		
	TOTAL	

Expected Expenditures

Travel		
Supplies		
Equipment		
Reference Books		
Instructional Aids		
Furniture		
Contracted Services		
Construction or alteration of facilities		
Other		
	TOTAL	

Figure 24

Motivation

Discipline and motivation at times seem like polar opposites. They are not. The two concepts are linked in such a fashion that when students are motivated discipline problems seem to diminish. However, in all fairness, it must be pointed out that motivation, per se, is not as easy in practice as it may appear to be in theory. Motivation is also not one of those things that occurs by accident, nor should an instructor expect the student to appear in the classroom already motivated for the course. Motivation comes from developing a greater interest in the course. Developing a greater interest in the course comes from greater involvement in the field and the subject matter area. If the instructors are not enthusiastic and motivated about their course of study, then the students aren't likely to be either. So, in a large sense, the first step in student motivation is the development of a very positive personal outlook from the instructor's point of view and the generation of some personal enthusiasm that the students can hitchhike on.

Discipline

The openness of the vocational laboratory provides ample opportunity for discipline problems to occur. This being an accepted fact, the administrator and instructor must take steps in advance to prevent discipline problems as opposed to dealing with them one by one as they occur. This passage does not intend to imply that all discipline problems can be prevented, rather that care in the beginning will reduce many of them.

Discipline begins with planning. Planning, as it relates to discipline, must provide tasks for each student at the level on which that student is ready to work. Work below that level will be completed too soon providing extra time for "monkey business." Work beyond that level

causes frustration which will also produce discipline problems. It is a classroom management function to plan for these appropriate tasks and to ensure that each student stays on the assigned task. It also includes a student orientation toward the next learning experience.

A student experiencing success is a valuable factor in the prevention of serious discipline problems. In addition to his/her being able to complete a task properly, the total successful experience also requires a teacher-student rapport, built around teacher reinforcement and encouragement. This reinforcement and encouragement should arise from the instructor's significance as the competent professional in the classroom/lab, and the respect such a professional attitude will extract from the students.

An early part of the planning for good discipline should revolve around establishing the basic rules of the habitat. This should be done jointly by the teacher and students. This session should include all aspects of the school policy, rules, and regulations. Coverage will include such simple things as where the post secondary student can and cannot smoke, through a complete review of the student handbook. Always remember that it is easier to support a rule if one understands why it exists. During this session the teacher can accomplish this by (1) always demonstrating to the students a positive attitude toward school policy, (2) acquiring suggestions from the students regarding rules for the classroom, and (3) explaining the purpose of each school regulation (policy or rule) to the students during this basic session. The learning managers should get as many classroom rules as needed but should not add rules that have no real value in terms of safety, learning, housekeeping or school policy.

Student Grading and Record Maintenance

Grading in an individualized program should be based on the mastery of a given set of objectives relative to a particular occupation, any other grading is superfluous. Included in this mastery approach is grading for attitude and employability skills. These are not extra, but rather an integral part of the program.

The first problem encountered by the vocational instructor in grading students is one of an administrative nature. Administrators and many of the teachers as well, have convinced themselves over a period of time to plan for and use an A-B-C grading format. To work with this format in the individualized program the vocational teachers must of necessity make some adjustments. If the school policy and administration require ABC's, then there are two primary factors to consider. The first is the amount of time it takes the student to acquire mastery of a particular objective and second, the number of objectives that a student should master in a given grading time. For example, if a school operates on a 12 week quarter basis and the student can master one objective per week, then the instructor might set the mastery of 12 objectives as being equivalent to "A" work. The mastery of 9 objectives might be equal to a "B," the mastery of 6 objectives might be equal to a "C," the mastery of 4 objectives might be equal to a "D" and below that would be a failure for this grading period.

Mastery learning refers to successful performance of a task measured by a criterion level. It should be pointed out that a knowledge or performance criterion level of 100% is not always necessary to achieve mastery of an objective.

Grading according to objectives met has two advantages. First, it meets the typical administrative criteria for grading; second, but perhaps most important, it serves to motivate students in terms of making the

very best use of the time available to them for accomplishing their tasks during the course of study.

The wall chart is a valuable tool in student record keeping. It allows both the instructor and the students to see at a glance where the class is in general and where a given student is in particular. Grades, however, should never be placed on such a wall chart. Progress should be indicated by color coding or checking off those tasks that the student has mastered. The progress chart also serves as a motivating device as well as a record keeping device. The design can be of many different variations. The best bet is for instructors to choose one that they are most comfortable with. A sample progress report is provided in figure 25.

The layout of the teacher's record or roll book would be somewhat similar to the wall chart but would contain much more specific information including grades, number of attempts, and such other information as should remain within the confidence of the instructor. It would be from this source that the teacher would produce student grades and recommendations, if appropriate, in terms of the student competence level for the given course of study.

Finally, grade reporting is a problem in vocational education. As has already been pointed out, to meet school requirements grades can be reported in the traditional fashion, A, B, C, D, or F. However, to report a post secondary school student's accomplishments to either industry or to a post secondary school will require more than a simple A, B, C, D, or F grade. Industry, constantly seeking new employees, and post secondary schools, attempting to articulate with secondary schools, need to know what an individual has studied and what level of accomplishment has been made relative to those studies. Therefore, in view of this need, the best reporting device would be a very explicit set of objectives, indicating wherever possible the student's degree of mastery relative to a particular objective.

Figure 25

INDIVIDUAL PROGRESS REPORT

Name _____

UNIT NO.	DATE		TIME		GRADE			Comments
	START	END	EST.	ACT.	WR	LAB	TOTAL	

As an illustration of the above, if there were ten subordinate steps involved in a given objective and the student had mastered eight of those steps then he would have an 80% accomplishment level. However, if the objective was such that the student must be able to fully complete each step leading to the objective then he/she would have either mastered it or would have not mastered it. It seems evident that grade reporting in vocational education cannot be as simple as A-B-C. A letter grade may satisfy school administrators and it may satisfy students at this time in their life but it will not satisfy the representatives of industry, business and commerce over an extended period of time as they interview and attempt to employ graduates of vocational schools. Therefore, it is recommended that the objectives of the program be identified and students be provided with a copy of the list of objectives that they have accomplished and perhaps even those objectives that they should have accomplished through the duration of the program.

Arranging the Physical Facilities For An Individualized Vocational Program

The introduction of an individualized vocational curriculum, in addition to the previously mentioned role changes for instructor and students, will also cause changes in the classroom/laboratory. These changes include a related learning center, some additional files, better planning in the tool room and the creation of an instructor work center. Some suggestions for each of these changes are discussed below.

The Learning Center

The learning center is second only to the laboratory itself in terms of importance. It is here all audio visual materials and equipment are housed, reference materials are organized and stored, and student study area is provided. The learning center must provide storage space for shelving films, tapes, slides, video tapes, etc. Each item must be clearly marked and accessible to the students. This accessibility must be clear enough to allow the students to obtain and replace the materials without help. A shelving arrangement is advisable for this purpose. These shelves should be in the design of pigeon holes sized appropriately for each piece of audio visual material. This type of shelving could be purchased from any firm supplying library furniture or constructured locally. The drawing in figure 26 is an example of a homemade unit.

In stocking the learning center, it is not necessary to have one copy of each item per student, however, it is a must to have a sufficient quantitiy of materials on hand to handle at least five students in the same unit at the same time. This material should be monitored frequently so that missing or damaged items can be replaced. It is also wise to keep a complete master set of all materials in a safe place.

HOMEMADE STORAGE UNIT

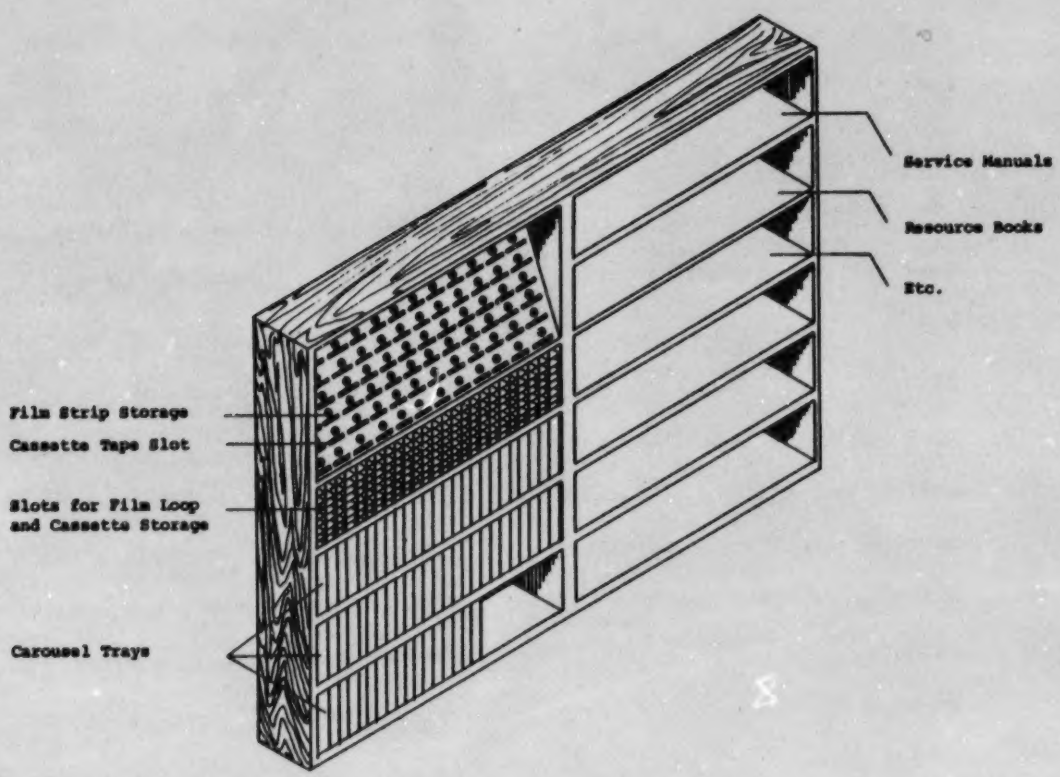

Figure 26

Since students can view audio visuals independently or in small groups, one or two copies (in addition to the master set) should be sufficient. Each audio visual item should be kept in its original container and clearly coded to match the unit it is intended to support. These, too should be monitored for defects and repaired or replaced on an as-needed basis.

Printed matter including textbooks and reference materials need to be cataloged into the learning center in a fashion that will enhance student retrieval. It is also important to arrange them so that the instructor can keep track of the total set of printed materials almost by observation.

In establishing the location for the learning center there are two primary criteria. First, it needs to be in close proximity to the actual lab so that students can go in and out as needed. Second, it must be in an area that can be kept clear and as clean as possible. For example, a substance as simple as aerosol hair spray can damage both the electric motor and the heads of a tape player. One additional criterion is to be sure that the learning center is always clearly visible to the instructor. The use of a glass wall will enable the instructor to supervise both the lab (shop) and the learning center without leaving the immediate lab area.

The actual furnishing and equipping of the learning center is determined by the breadth and depth of the program and by the enrollment capacity. The following list offers some rule of thumb suggestions for furnishing and equipping the learning center.

1. There must be ample storage space for the audio visual and reference materials. These must not be crowded. Crowding will cause material damage or loss and make student retrieval an impossibility.

2. The learning center should be furnished with furniture both for individual activities and for small groups. Space and furniture should be ample to hold one fourth to one half of the students at any given time. Actual furniture should include a minimum of five individual study carrels, two study tables and a portable study carrel for small group work.

3. Audio visual hardware will be determined by the type of audio visual materials developed for and used in the program not the other way around. There should be enough machines available to support one fourth of the students at any given time. It is a good idea to keep a supply of spare parts (i. e. light bulbs, etc.) on hand at all times, and, if possible, have one portable machine that can be held in reserve.

The following list of audio visual equipment was suggested for the Georgia individualized auto mechanics program based on enrollments of 20 and 40 students.

Item	20 Students	40 Students
Cassette playback & projector	2	3
Portable slide/tape unit	1	2
Filmloop projector	1	1
Filmstrip projector	1	2
Headphones	10	15
"Y" connectors	5	10
Listening station	1	2

Tool Room

A properly functioning tool room is critical to an individualized vocational program. All of the general rules regarding tool storage, maintenance and security still apply; however, the "set-ups" for each instructional activity must also be kept in the tool room. Each set-up must be coded to the appropriate instructional unit and kept in a constant state of readiness. This can be one function of the assigned tool room keeper. As a set up is returned, the tool room keeper can replace the used parts, etc. and get the materials ready for the next student.

Keeping the set ups in the tool room prevents petty pilfering and loss of materials. It also keeps them organized so that the instructor knows when it is time to reorder consumable supplies.

Monitoring and Maintaining an Individualized Curriculum

Unfortunately, the installation of an individualized curriculum is the beginning rather than the end. It must be kept up. This is accomplished by replacing missing or damaged materials, updating reference books, and keeping the audio visual equipment operating properly. Due to the ever changing nature of work and technology, parts of units, and in some cases, whole units will become obsolete. These must be identified and replaced as quickly as possible. Suggestions for appropriate monitoring and maintenance are also offered in several other parts of this section.

The administrator and instructor should monitor both the process and the product of the individualized curriculum. The following indicators can be used to determine if the program is functioning properly.

1. The process is functioning when:

    a- An individualized process is in use as indicated by instructor and student functions.

    b- There are no bottlenecks in the program. Students are able to move through the materials without problems caused by the materials themselves.

    c- There are no delays resulting from the lack of set ups or malfunctioning audio visual equipment.

2. The product is successful when;

a- Reports from local industry indicate that workers who have completed this program can perform the required tasks.

b- Feedback from graduates of the program indicate that the training is meeting their needs as a worker.

A program log is a must for the instructor of an individualized curriculum. Such a log amounts to no more than a complete set of the curriculum materials in notebooks. The instructor can then document each discrepancy in the materials as it is found and later use this information to make corrections and adjustments. The log can also be used to identify potential problems with student flow and help the instructor spread students (in the beginning) to prevent them from arriving at the same point at the same time.

(Additional details are available in Installing and Operating an Individualized Program, a publication of the Georgia State Department of Education, Office of Vocational Education, State Office Building, Atlanta, GA 30334).

Further Consideration in Curriculum Planning for Vocational Education

In most discussions regarding the vocational education curriculum almost all attention is directed toward preparing materials for the teaching/learning of entry level job skills. This exclusive approach to the vocational curriculum may be a fatal flaw. There can be no doubt that the development of entry level work skills is a primary purpose of vocational education. However, possessing entry level work skills alone will not sustain an individual in a life role as a worker.

Feedback from industry and current career and vocational publications continuously call attention to three worker problems that go beyond the basic job skills. First, more workers are discharged for poor work habits and the inability to get along with fellow workers and supervisor than are discharged for incompetence. Second, Americans change jobs frequently. Many of them will work at as many as seven different jobs in their career life. Third, very few workers have any career planning skills that will enable them to organize and control their career growth in a constructive manner.

With this information in mind, the vocational administrator should add a "third dimension" to his/her curriculum plan. The first two dimensions would concentrate on the basic skills and knowledge relative to the actual performance of the job while this third dimension would be designed to provide for the following constructs.

Construct I: Occupational Survival Skills

Occupational survival skills are those interpersonal and and employability skills necessary to keeping a job. Briefly, these skills amount to knowing how to work productively, getting along with peers and supervision,

being a productive team member, taking care of equipment, and being present on time. (There are many other occupational survival skills. These are listed to illustrate the construct only.)

Construct II: Career Development Skills

Career development skills focus on those skills that will enable the students to continue to grow in their chosen career. Primary among these are career planning competencies, knowledge of the skills in their training program that are transferable to other occupations and skills that will enable them to adapt to different jobs within the occupation for which they are now receiving training.

"Now wait, I don't have enough time to get the basics taught much less this third dimension." Sounds just like the typical instructor? The truth of the matter is that in a properly planned curriculum the third dimension factors can be integrated into the regular studies without demanding extra time. Many vocational programs and courses simply meld these constructs into the curriculum. These objectives are introduced to the students along with the skill and knowledge objectives , and the student's accomplishments relative to them are reported separately during the regular reporting period. An illustration of one post secondary vocational-technical school's plan for accomplishing this task is attached as appendix II.

It is the teaching of these third dimension skills that produces successful students and happy employers. These skills will do as much to enhance the reputation of a vocational program as the performance skills.

DUTY 5

IMPLEMENTING AND CONDUCTING AN EVALUATION SYSTEM FOR THE VOCATIONAL PROGRAM

Duty Introduction

A successful vocational education program will have not only a carefully devised evaluation system but also, and perhaps most importantly, carefully designed curriculum implementation procedures. Evaluation in its most effective form takes into account all phases of a program. For the purposes of the Handbook, discussion will relate only to curriculum planning and improvement.

The adjective successful can mean different things to different people. For this reason one must hesitate, at least briefly, before refering to any program in a negative fashion. It is hoped that the material presented in the Handbook will assist vocational administrators in establishing curriculum evaluation criteria and carrying out curriculum evaluation procedures.

One point should be made to readers before they further process information contained in this duty section. Much has been and will be said about objectives as they relate to evaluation and validation processes. Implications are also made concerning the formation of objectives through the use of advisory councils and manpower analysis. It must be said that the most carefully worded objectives, no matter how appropriate they may seem, are of no use in evaluation if they are not (1) based on sound empirical data and (2) completely in accord with the philosophy of the school.

Any evaluation must have a foundation to work from, in many cases this foundation is a set of objectives and a philosophy. If objectives are to be the starting point for an evaluation, then the necessity of empirical data to base the objectives upon becomes apparent. How, when and where to collect empirical data is discussed at length in this section.

A thought provoking discussion is provided concerning data from a community survey versus data from secondary sources. Advantages of each are given.

Another source of empirical data, often overlooked for curriculum development purposes, is the advisory council. Much has been written concerning advisement from outside sources; however, the Handbook views the advisory council solely in their capacity as curriculum content experts.

The vocational administrator has the overall responsibility for program evaluation. An ongoing evaluation process must be designed and implemented. The purpose of an evaluation process is to ensure that each participating student is receiving adequate preparation that is congruent with the prevailing job market. The curriculum, therefore, bears the burden of fulfilling this obligation. For that reason, it must become empirically sound. This is accomplished by scientifically answering the questions enumerated below.

1. What jobs are available that require special preparation?
2. What does the incumbent worker do?
3. Can the students in a given curriculum perform according to standards?
4. Can program completers perform at an acceptable level on the job for which they were trained?
5. Do the completers demonstrate occupational survival skills?

The data based answers to these questions will indicate what, if anything, needs to be done with the curriculum.

Evaluation of curriculum materials and curriculum development techniques is the main topic of the last section covered under this Duty. A brief overview of evaluation as it relates to decision making is presented along with several models illustrating prior work in this area.

COLLECTING AND ANALYZING WORKFORCE INFORMATION

To plan a successful program in vocational education, the vocational administrator must have the best, most accurate information available. The vocational administrator must be aware of current trends both in the workforce and in education itself. He/she must review and analyze all labor market projections by carefully reviewing the history of similar projections and the set of assumptions upon which these projections were based. Above all the planner must "localize" the data. The supply of graduates and other sources of trainees entering the labor market must be known as well as what happens to them once there. The key concept is continuous planning aided by regularly monitoring the local or service area labor market, thus establishing an in-depth data base for any required changes.

The passage of Public Law 94-432, commonly referred to as the '76 Amendments, with its strong position regarding job placement has re-emphasized the need for program relevance and promoted an interest in the use of manpower (workforce) supply and demand information. Federal legislation over the years has always emphasized a concern for relating vocational education to workforce needs. None, however, has made this point with more force than Public Law 94-482.

Since vocational education is currently operated and funded by the above mentioned law, it is, therefore, not only morally but now legally required to plan and operate programs based on real manpower data. Since vocational education represents the student's direct linkage to the world of work, it is imperative that those vested with the responsibility for developing and operating programs of vocational education plan these programs in the most realistic manner, very much taking into account future employment opportunities, manpower needs, and trends. But, as educators they cannot ignore the student's rights to choose or their own obligation to operate educational programs as opposed to simplistic, tentative training programs.

Vocational education decision makers must search for effective and efficient means with which to meet the needs of all people who can benefit from vocational education. They must constantly be alert to keep their curricula in harmony with changing business and industrial conditions, technological changes, and the requirements of a labor market. These vocational administrators move to satisfy a growing demand for educational accountability and to be effective in the competition for the scarce training/education dollars. Such an environment requires them to satisfy two clients, their students and their local labor market. To accomplish this a program-curricula-labor market connection must be established without sacrificing the democratic right of personal choice or converting educational programs into training programs that float in and out with the economic tides of the labor market.

There are three ways in which the relationship between vocational education and manpower demand can be viewed. First, if the vocational administrator supports the whole concept of career education, then there is no need to be concerned about the future manpower demands. Instead, we will just educate the youngsters. This approach is consistent with the model currently in use and one that has been practiced for some time.

The second approach, and a highly distasteful one in a democratic society, is to develop a totally planned ecomomy, one in which the young people would be matched to jobs within the framework of a very carefully controlled economic system.

The third approach is to allow the market to function as it does now, but to design systems whereby potential market/manpower demand bottlenecks can be anticipated and eliminated through efforts of the educational system. This kind of approach would place an important emphasis on manpower forecasting. Manpower forecasting, used with discretion and care, appears to be a functional, democratic approach that can be used within the present American free enterprise system.

How then does the vocational administrator develop a data base sufficient to provide for local manpower projections based on clearly defined sources of supply and demand. There are three basic routes the local vocational administrator may take to identify manpower needs. The first, consultation with an advisory committee, may provide the beginnings of a political base as well as good practical knowledge. Further information concerning the important curriculum advising role of advisory committees may be found on page 134. The second source of information, a community survey, is the method most commonly employed by local school officials. The third method, an analysis of data from secondary sources, may be carried out with a review of professional literature, U.S. Labor Department statistics, information from state employment agencies, state department of education's office of vocational education, the Internal Revenue Service and others.

Primary data obtained directly from local advisory committees and local employers is, unfortunately, not always accurate. Data may at times become the victim of a degree of "trade bias." Therefore, local information must be tempered with the addition of national, region, and state data.

The specific questions that may be answered through data analysis may be broken into two phases:

Phase One - Program Need

1. Is there enough need for a program to justify it?
2. Will jobs be available for those who satisfactorily complete a training program?
3. Will the job market for a particular occupation continue in the forseeable future?

Phase Two - Validity of Content

1. To what skill level must workers be trained to fill the kinds of jobs available? (The answer to this question must also come from a task analysis.)
2. Are the schools providing the labor market with adequately trained employment candidates.

The State of Nebraska used a number of sources to identify manpower needs. First and foremost among these was the Internal Revenue Service. From the Internal Revenue Service they were able to identify all firms employing one or more persons, domestic help, and farmers and ranchers employing hired labor. They also contacted the Employment Security Division of the State Department of Labor. From that source, they were able to identify out-of-state firms with in-state locations and federal-state-local tax exempt agencies. And finally they contacted their state tax commissioner who operated the state business master file. Oklahoma used the State Employment Security Commission and the Governor's Comprehensive Manpower Planning staff as their sources of labor demand information.

Those sources when used in combination with local sources will provide the vocational administrator with ample data for the demand phase of the problem. The supply phase is another matter. People trickle into the labor force from a variety of sources. To solve this problem, Pennsylvania went about the identification of every training agency in that state which had the potential to produce occupationally trained individuals. In so doing, they compiled a basic list of sources of supply information. The following are given as their primary sources.

1. Public secondary vocational-technical schools
2. State trade and technical schools (post-secondary)
3. Community colleges
4. Private business schools
5. Private junior colleges
6. Associate degree programs in four-year colleges
7. Dropouts from high school programs
8. Military returnees
9. CETA programs
10. State retraining programs

The term "supply" is used here to indicate those people who have prepared or are preparing for a particular occupation.

To further develop this aspect of the supply demand effort, the population should be viewed in terms of those at the pre-education level, those in education, those employed at the level of under-employment, those unavailable for employment, the birth rates, and the rate of immigration into the region. The model in Figure 27 graphically displays the dynamics of these supply-demand components in producing workforce projections.

The degree of thoroughness and the method selected for manpower analysis will depend largely upon the objectives set by and constraints (time, money, and manpower) imposed on the vocational administrator. Perhaps the best method for obtaining this imperative data would be an equilibrium approach, a combination of the best information from local sources, the community survey and advisory committee, and the more difficult compilation of data from secondary sources.

Community Survey

A community survey should be a comprehensive study of the employment climate of a community. With certain limitations it will supply information concerning current manpower needs as well as future labor requirements for certain occupations. A survey of community needs is an important factor in developing a well-balanced and accountable vocational curriculum.

A viable, growing vocational program will have a statement of goals (a mission or a purpose). These goals may be used as a basis for future planning. The community survey provides, through the planning process, a basis for curriculum decisions. The decisions include (1) the addition of new curricula, (2) the elimination of curricula due to irrelevancy and, (3) the revision of curricula due to technological

WORKFORCE SUPPLY--DEMAND RELATIONSHIPS

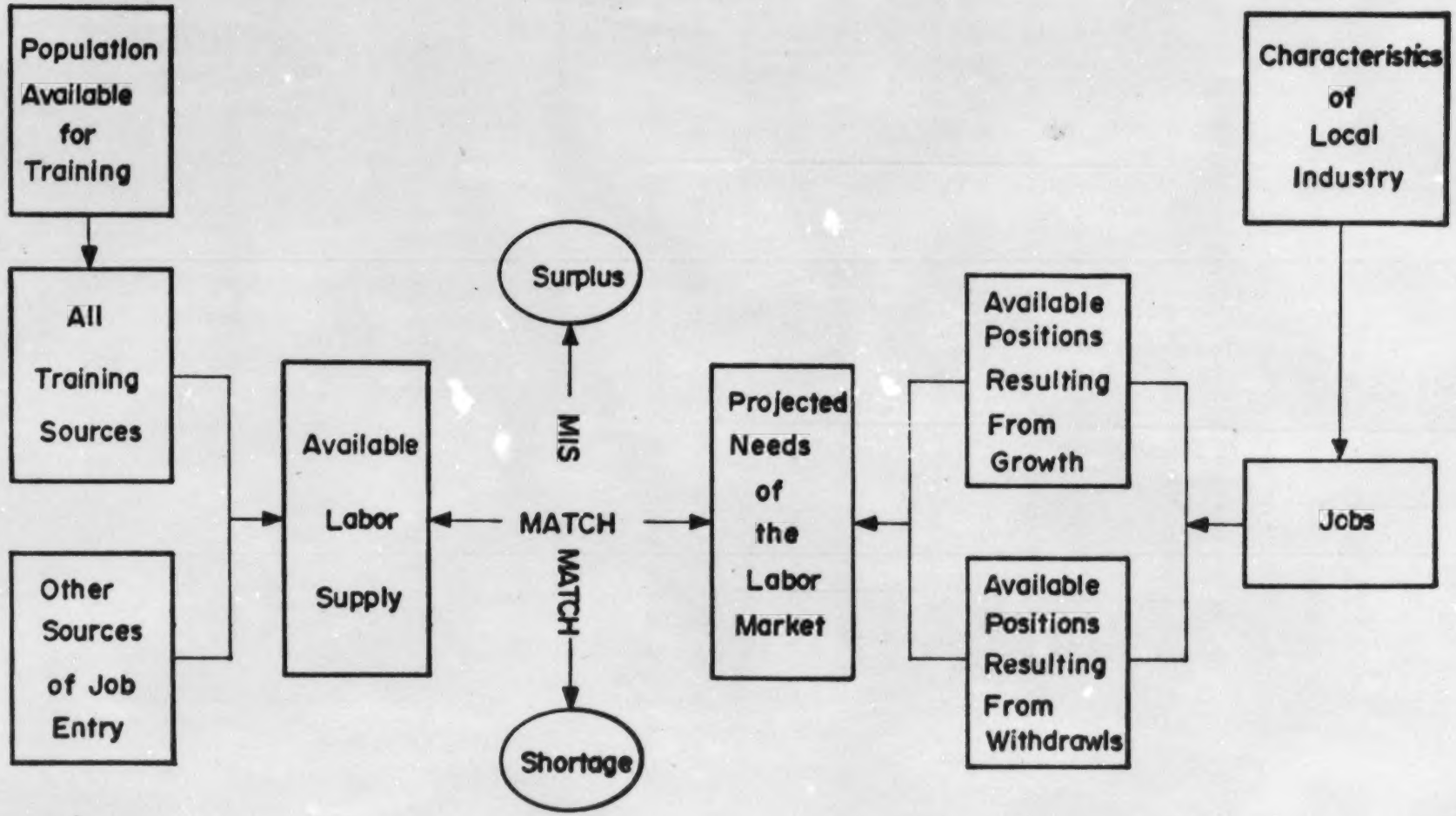

Figure 27
C. Paul Scott
University of Georgia
1978

advances or social change.

The survey instrument, which will be described later, will provide the vocational administrator with a plethora of information. The most difficult job he/she faces is determining how it will be used. Vocational education prepares people for working in a constantly changing world. Vocational curricula based on valid, reliable data benefit business, industry and, students--those enrolled now and those who will enroll in the future.

A successful community survey, like any other successful endeavor, requires much planning. Outlined below are suggested steps that may be followed by the vocational administrator conducting a community needs survey.

(1) Organize a committee. This is a vital step because these are the people who will be carrying out the project. The committee may consist of:

(a) the vocational administrator and the department heads;

(b) representatives from each craft advisory council;

(c) the general advisory council; or,

(d) a combination of the above plus classroom/lab managers.

(2) Call the first meeting. The first order of business should be to select/elect one person to direct the study. This project director will normally be a school employee (the administrator) unless an advisory council member has special expertise in this area. The project director must also be responsible for writing up the results.

(3) The next order of business will be to establish a plan of action. This plan should clarify goals and objectives, assign individual duties and set potential target dates.

(4) Prepare a list of appropriate businesses to be surveyed. Special attention should be given to those areas outside the city or county boundaries. Community, in its broadest sense, includes any area in which graduates of the school find themselves after they leave school and enter

full time employment. Sources for the list will include telephone directories, city directories, chambers of commerce data, membership lists of retail or manufacturing associations and existing studies and research.

(5) The committee must determine what technique they will use to obtain data. Alternatives are limited to telephone, mail or personal interview. Distribution by mail is the simplest and most economical method of data gathering; however, much may be said in favor of personal contact.

(6) Design the instrument to be used for data gathering (more discussion on this vital aspect will come later).

(7) Reconvene the committee to examine the instrument. Consideration should be given at this point to final tabulation. Consultation with Electronic Data Processing tabulators may be necessary to insure compatibility. The committee should also be in a position to set a final completion date. After adequate examination by the steering committee and consultants as they are available, the instrument should be finalized.

(8) Pilot test the instrument. This can be an optional step depending on time and money available and accuracy of results needed. If a formal pilot test is not performed, the vocational administrator should at least have a "dry run" with a few uninvolved parties. This will ensure clarity of questions and directions. It is very important for questions to be clear so that proper information may be given. Equally important, the instructions must be clear so respondents will know how to provide information.

(9) In step five the committee decided on a procedural technique. For step nine, a review of procedures should be made and necessary modifications inserted. With proper plans made, the survey may be formally conducted.

(10) This is an optional but usually rewarding step. A concerted attempt should be made to publicize the survey. This pre-activity public relations

effort will pay off with increased survey returns. It will also let the community as a whole know that they are involved in curriculum development.

(11) As is normal in most mailed surveys a follow-up for non-returns may be necessary. The follow-up would best be implemented with a tactfully written letter using phrases like "lost in the mail," "not enough time in your busy schedule," or "perhaps you mislaid." Be sure to include another questionnaire, just in case.

(12) When returns are in, tabulate the data, analyze the findings and report the results. Often with a community survey, the objective data must be looked at with some subjectivity. The final report must take into consideration factors such as (a) economic fluctuations, (b) probable migration of students and, (c) students who enroll but never complete the entire program.

Developing a successful and effective questionnaire requires careful thought and consideration. A key point in designing the instrument is to determine exactly what information is needed. The following are some suggestions to be reflected upon in the process of development:

1. Keep the instrument brief and simple.

2. Make sure the questions are crystal clear as to what information is desired.

3. Whenever possible use multiple choice questions. They are easier for the respondent and the tabulator.

4. Ask the following questions as they apply:

   -Total number of employees; part-time and full-time?
   -Number of replacements needed annually?
   -Perceived reasons for shortages of qualified potential employees?
   -Starting and maximum wage?
   -Working hours per week?
   -Qualification of typical incumbent worker (education, experience, and training).
   -Typical advancement route?
   -Are the schools (is the school) providing the labor market with adequately trained employment candidates? Indicate areas lacking experience, general education, specific training and, special competencies.
   -Are there current part time jobs available for cooperative education students?

The instrument upon completion should be sent to people who employ workers in the occupation in question. It should also be sent to those same types of people in adjacent communities. For a questionnaire to be effective it must be accepted by the respondent. A cover letter, from the superintendent, advisory board chairman or other respected official giving the purpose of the survey will greatly augment its acceptance.

Data from Secondary Sources

Information obtained via a community survey is always a good first step in an analysis of manpower needs. However, the vocational administrator must be concerned with the accuracy and adequacy of local supply and demand information. A reasonable question to ask is--"are the employers doing the planning necessary to project their needs with any degree of accuracy?"

To facilitate the decision making process, information from secondary sources may be used as a supplement. Described next are several secondary manpower information sources.

I. Econometric Studies. These are made by governmental agencies such as the Bureau of Labor Statistics of the U.S. Department of Labor. Their studies yield a ten year demand analysis based on projections of population, labor force, productivity, consumption and, overall output. In addition to the national studies, most state labor departments compile similar data on a regional as well as state-wide basis. Examples of the types of printed information are (1) directories of labor market information; (2) detailed industry and occupation estimates and projections for regions and states: included here would be (a) total employment by industry, (b) employment change by industry, (c) total employment by occupation, (d) employment change by occupation and (e) average annual job openings; (3) occupational employment in state non-manufacturing

industries (usually with five year projections); and (4) occupational staffing patterns in selected regulated industries (usually with five year projections).

The above studies are very sophisticated and more dependable than employer surveys. Similar studies could not be feasibly undertaken by the vocational administrator due to time requirements, expense and the complexity of research techniques. These are usually free of charge from the local offices of the U. S. or State Labor Department.

II. Job Vacancy Studies. This study adds input from local sources to the econometric model. It depends primarily on the state employment service for information. A listing is compiled of local jobs that have remained unfilled over a period of time. These are then compared with the national trends and a priority listing is made.

A job vacancy study may be completed by the vocational administrator or curriculum developer and up-to-date results obtained. It has other advantages such as an analysis of the probabilities of persistent shortages and the potential for cost benefit analysis of training students for work in a particular field. The problem with a job vacancy study is that it deals only with the present, and not future needs or future growth.

III. Extrapolation of Trend Surveys. The researcher in this case must collect as much data as possible on past employment trends. This information concerning employment may be graphed, inserted into a formula or programmed on a computer to make a scientific judgement as to future trends.

This method may also be used to augment the community survey or other secondary needs assessment sources. Relatively speaking it is also quick, easy, and inexpensive. The major problem with an extrapolation method is its reliability. Because of the economic and technological changes which occur

every day, any far reaching predictions made with this method should be questioned.

IV. Literature Surveys. A literature survey will be of great assistance in keeping up with those "economic and technological" changes which occur in the world of work. Much information is available in professional journals and also in newspapers distributed locally and state wide. Here is a sample listing of periodical literature.

Voc-Ed

The Agricultural Education Magazine

Training in Business and Industry

Accounting Digest

Advertising Age

Business Week

Changing Times

Computer and Automation

Consumer Report

School Shop

Industrial Arts and Vocational Education Journal

Journal of Business

Journal of Retailing

Fortune

Sales Management

Nation's Business

American Journal of Nursing

Nursing Research

Marketing and Communication

Dunn's Review of Modern Industry

Data Processor

Summary

Program success in vocational education is greatly dependent upon relevant curricula. Relevant curricula, in turn, are dependent on valid, reliable data obtained from a manpower needs assessment. The vocational school must constantly strive to remain aware of these needs. It is hoped that the information presented here will be one of the many tools used by the vocational administrator to meet the needs of the student and the community.

Remember to monitor continuously and remain in touch with the job market and be willing to make program adjustments when there is conclusive evidence that this is (considering all factors, including a longitudinal view of the economy) a deadend program.

Don't jump the gun; view emerging occupations first as emerging industries. Many skills and jobs in existing industries will transpose to the so-called emerging occupations with a minimum of adjustment. Boldly rushing into a specific training program for an emerging occupation may be the surest method for creating an oversupply of trained or unneeded workers.

Consider labor markets beyond one's immediate service area. The demand for welders in your location might be weak, but other areas may have a high demand. For the student who is willing to relocate even temporarily, this can become an entry point into the labor market.

Remember, workforce supply-demand projections must be followed over an extended period of time to acquire the more "realistic picture" of labor market needs. (Chart the fluctuations before using any data. Never use one-time data).

In the final analysis, it is sufficient to say that no data are complete in and of themselves. Certainly all manpower projections, needs and information collected must be considered within the times in which they

occur, in the times for which they are projected and within the geographical location for which they have been developed or else adjusted. Nonetheless, this information is probably the best that has ever been available to vocational education and more has been done with it than with any previous data collected. Still in using those data, the vocational administrator must be wary and evolve all planning and projections from such data with some good common sense and the proverbial grain of salt.

Establishing and Using An Avisory Committee

The short section following this introduction describes the contributions an advisory committee can provide for the improvement of the vocational curriculum. However, before these contributions can be made, the committee members must be recruited, prepared and utilized properly. The following guidelines are offered for these purposes.*

1. Identify and research prospective volunteers.
   a. Determine the type of persons needed for this committee. Do you need a mix of incumbent workers, supervisors, small businessmen, personnel officers? Just what will the composite picture of the committee be?
   b. Develop a list of potential members. Find out if these persons meet your committee design. What kind of community service record do they have? (However, do not overlook the person who has never been asked if all other potential is there.) It is important to remember that you will be working with volunteers. Such efforts will require special knowledge and skills from both the administrator and the instructor. First and foremost is the ability to recognize the characteristics of a good volunteer. Some of these characteristics are interest, commitment to organization, organizational experience, initiative to get the job done, a sense of responsibility, and the availability of time or the knowledge to manage his/her time to accomplish the task.
2. Enlisting the committee members.

   This is a critical time. Be positive and honest when approaching the prospective members. Tell them exactly what the committee

*The senior author wishes to acknowledge the ideas and suggestions made by Gordon Bradwell, Associate Director of Alumni Affairs, University of Georgia, in the preparation of this section.

is about, how much work will be involved, how often they will meet and any other expectations you may have. Be certain that you do not introduce the committee as an activity required by state or federal funding sources. If you believe this to be the only reason for forming an advisory committee, then do not read any further. Most importantly, do not worry about being rejected by a prospective committee member--it is better now than later.

3. Organizing and utilizing the advisory committee.

The following do's and don't will aid the administrator and the instructor in obtaining the best results from the advisory committee.

a-DO establish rapport between the school personnel and the committee and among the committee members themselves.

b-DO orient the committee members to the tasks. Have a stated purpose for the year and supporting objectives.

c-DO make use of the suggestions and ideas offered by the committee members and give them credit and exposure as a result of these ideas. Recognition is a prime factor in motivating most people.

d-DO establish set terms of service for committee members. This prevents their thinking of the assignment as a "life sentence" and also allows the administrator a means for quietly eliminating inappropriate members.

e-DO help the committee members with time management. Remember, they are volunteers with other commitments and priorities. Avoid long meetings and extensive long term assignments. Provide first class leadership, guidance and planning for the committee. The administrator, instructor or both must

always cover for the committee member who falls short on a task. By all means give the committee members freedom and flexibility to perform their responsibilities.

f-DO build the capacity of the committee in terms of a knowledge of vocational education and the goals of your school.

g-DO consider the committee as an asset--never a liability. Your own philosophy and outlook are important here.

h-DO NOT dominate the committee members.

i-DO NOT refuse the offered services of a committee member.

j-DO NOT conduct long, boring committee meetings.

Careful utilization of the preceding guidelines and the applications of some good common sense should improve the quality of work provided by the various vocational advisory committees. The remaining part of this section offers some insight into the content and tasks of the advisory committee.

Advisory Council Activities

Vocational Education has long recognized the influence of the advisory council. Not only influential, it is also necessary in view of the dynamic changes taking place in the occupational structure of this country. In order for a vocational program to remain effective in its central purpose, that of fostering job skills, it must keep close ties with business, industry, labor and lay citizenry.

The Educational Amendments of 1976 state that such eligible recipients of Federal assistance under the act shall establish a local advisory council on vocational education for (1) program areas, (2) schools, (3) the community, or (4) the region in which the eligible recipient is located.

The Amendments also state the council shall be composed of representatives of the general public including at least a representative of (1) business, (2) industry, and (3) labor. Furthermore, included in the rules and regulations interpreting the law, (104.112) are the duties of an advisory council:

> The local advisory council shall advise the local recipient on: current job needs; and the relevance of programs (courses) being offered by the local education agency or post-secondary educational agency in meeting current job needs.

In view of the public demand on school systems to produce and the mandate from congress concerning advisory councils, it would seem the vocational administrator has the problem and its solution at hand. Advisory councils must, however, have certain limitations. What to teach is certainly within the purview of the advisory council, while how to teach is not. The "hows" of learning, teaching, counseling and, supervising are the specialized fields of teachers and administrators. Other areas in which the council should not be expected to become involved in are personnel matters, fund raising, and

policy making. It should be remembered, the advisory council's role is purely an advisory one.

The advisory council should be used extensively if an effective vocational program is to be established. A program is directly dependent upon a well planned and executed curriculum. This can be accomplished by requesting that the council:

A. Assist in assessing community and regional needs for vocational training and resources available.

B. Evaluate the program during the planning stage to determine if it meets the needs determined (in A).

C. Use the results (of A and B) to assist the program(s) in the preparation of courses of study, in determining course content and length of courses, and in keeping the courses in line with standards and needs found in a particular field. They may also assist is identification of occupational competencies, development of program goal statements and in reviewing topical outlines.

Other activities in which the vocational administrator would be wise to involve the advisory council in concerning curriculum planning and development are:

1. Help maintain a library of visual aids, magazines, and books concerning a particular industry.
2. Assist in planning for updating skills and introducing new technology.
3. Assist in providing on-the-job learning experiences or apprentice programs.
4. May provide materials for use in classrooms and shops such as finished products, raw materials, charts and posters.

5. Advise concerning information on desirable aptitudes, education and experience entry level students should have. This information helps with planning programs and recruitment for those programs.
6. May answer the questions: Does the curriculum provide an opportunity to explore the student's career and enable him to gain most from the training provided? Is it a realistic step toward meeting the student's occupational objectives.
7. May supply information concerning jobs and job advancement.
8. Schools often find themselves "bogged down" by too much theory in their vocational curricula. Advisory councils can provide experience to relate to the theory and also a look at reality.
9. May provide advice as to what production live work could be incorporated into the curriculum.
10. May provide a realistic criteria level for performance and specific performance objectives.

The advisory council may also help perform a much needed evaluation of the existing curriculum. They may help determine if the curriculum is specific and selective. The council may give its views as to whether:

1. Performance objectives are well defined to the point they meet the needs of industry and business.
2. Curriculum covered is directly related to employment.
3. Skills learning are those needed to meet occupational requirements.
4. Curriculum goals relate to the philosophy of the school.

The above suggestions concerning the use of an advisory council will, it is hoped, help the vocational educator avoid any information gaps. If these gaps already exist, perhaps with these guides they may be eliminated. These suggestions are focused toward the type of advisory council most

closely associated with the vocational teacher and the problems and concerns at the classroom/lab level. The learning manager must, however, realize that an advisory council is only effective to the extent it is utilized.

EVALUATING CURRICULUM MATERIALS

The father of modern educational evaluation, Ralph Tyler, proposed in 1942 that program evaluation be made in terms of whether objectives are met. Hammond (1973) as well as Metfessel and Michael (1967) similarly base the concept of evaluation on goal attainment. Of course, both the Hammond and the Metfessel and Michael models for program evaluation update Tyler's views and add components of the current "trends of the day" such as behavioral objectives and criterion measures.

Evaluation of curriculum materials may be looked upon in much the same manner as program evaluation. The bottom line, no matter whose model is examined, comes down to meeting objectives. In program evaluation careful consideration of the goals of the school must be made; in evaluating curriculum materials, final evaluation must lie in what the student learns and how well the materials relate to the represented occupation.

The principal objective of any evaluation is to better facilitate decision making. In the case of curriculum implementation the vocational administrator must be able to give instructors good advice. This advice may best be obtained through sound evaluation processes.

According to Weinrich & Weinrich (1974) the five most common (and time tested) criteria for vocational education evaluations are:

1. program completion rates
2. student competency
3. cost efficiency of the program
4. placement of students
5. employer-employee satisfaction

In judging curriculum materials development, vocational administrators must not ignore the above factors even though they relate primarily to program evaluation. When evaluating curriculum materials, those currently in use, those being considered for use and those being developed, these questions

should be asked:

1. What are the ultimate learning objectives for which materials will be used to meet?
2. Can the learning objectives be measured?
3. Are pretests and posttests applicable as measuring devices?
4. What kinds of tests may be used to determine if the learning objectives are met?
5. Are other materials available which could be adapted to meet the objectives.
6. Would other materials accomplish the same results at a lower cost?
7. Will there be opportunities to pretest the materials developed, prior to actual use?
8. What size learning group shall be used in testing materials?
9. All materials should be effective. What criteria may be used to determine effectiveness?

Evaluation can be based on goal attainment, intrinsic judgement, extrinsic judgement. In the case of evaluating curriculum materials, however, regardless of the base, a decision must be obtained as a result.

The following text will discuss three decision facilitation models in brief and describes another in detail. The object of all four models is to provide the vocational administrator, and hence the classroom/lab manager, a tool for making the necessary decisions which lead to curriculum improvement.

One popular educational evaluation procedure is the CIPP model developed by Daniel Stufflebeam. He views evaluation as being a cycle or a continuous process. The components are:

Context - How were objectives determined?

Input - What resources were utilized to meet objectives?

Process - What procedures were taken to meet objectives?

Product - What are the final results after instruction?

The Discrepancy Model espoused by Malcom Provus compares performance with standards in order to make an ultimate decision to improve, maintain or

terminate. The Discrepancy Model has five phases.

Design - What are the objectives and what resources and activities are needed to meet them?

Installation - Does current progress correspond with the plan?

Process - Are proper procedures being followed?

Product - What are the results?

Program Comparison - How does the original plan measure up to similar plans?

The Center for the Study of Evaluation (CSE) at UCLA has developed a three stage-six step model which is also designed to help facilitate better decision making. The CSE model contains the following elements:

Preformative Stage - step 1 - needs assessment

- step 2 - program planning

Formative Stage - step 1 - evaluation of implementation procedures

- step 2 - evaluation of progress

Summative Stage - step 1 - evaluation of documents

- step 2 - evaluation of outcomes

The reader will notice a great similarity in the above three models. A fourth evaluation model, which also has similarities to others, has been developed by Robert D. Tennyson of the University of Minnesota. His article in Educational Technology (September, 1976) entitled "The Role of Evaluation in Instructional Development" presents guidelines to be used in an evaluation model which takes a different viewpoint from other models.

Most types of evaluations take place at the end of materials development in order to revise them before dissemination. Tennyson presents excellent suggestions for evaluation of materials which eliminate the recycling phase at the end of development. This not only allows for cost effectiveness but also could provide a better final product.

For complete details on Dr. Tennyson's evaluation guidelines the reader is referred to the above article; however, in view of the purposes of the Handbook a synopsis of his ideas will be presented.

Evaluation should be done during the feasibility study, the formative design and development stage, a summation prior to diffusion, and continuous evaluation after implementation.

Therefore with Tennyson's model, there are four distinctive evaluation phases -- feasibility, formative, summative, and maintenance.

1. Feasibility Evaluation -- The first step in developing materials is to identify the problem area where help is needed. The feasibility evaluation process looks at the procedures used in identifying the problem. Specifically it examines the source of data used to make decision. This evaluation also looks at the goals and objectives established and their relationship to the actual problem. Costs and developmental ability must also be checked during the feasibility stage. Complete documentation should be made in this area.

2. Formative Evaluation -- Changes inevitably are made in the developmental stage of any project. A formative evaluation collects data necessary to making these changes. This information is best obtained from prospective students, teachers and advisory members.

Review and critique of content structure -- Content structure is the range and sequence of knowledge to be included in the instructional materials. Content determination is usually made using a consensus technique. Consultants or specialists will review and critique the content structure presented by the curriculum developers. This critique must not be viewed as good or bad judgement but rather as a constructive comment made for improvement.

An evaluation judgement to be made at this point concerns the intended learning sequence to be presented. Tennyson reports that his 1972 research identified basic types of sequences as hierarchical, algorithmic and random. Tests may be

conducted to determine whether lower behaviors must be learned before advancing to more complicated problems (hierarchical sequences). A determination may also be made as to whether the output of one step in the information processing sequence is the input for the next step. The final type of sequence, randomization, would indicate that knowledge may be looked upon in any order although certain "logical" orders might be best.

The next step in the formative evaluation is a type of pilot test or "try out." These may be held on a one to one basis, with a small group or both. This pilot test between the learner and the developer of the materials can produce valuable insights as to the clarity of directions and content. After the student works through the material a test evaluating knowledge should be given. This will tell the developer something about the average student's retention rate concerning this material. Editorial problems may also be resolved and further refinements of both content and student evaluation techniques made.

3. Summative Evaluation --This evaluation will determine to what extent the curriculum materials meet the goals and objectives of the project. In performing this evaluation the developer should gather data on student performance, pretest and post-test results that indicate a gain in learning, how much time was spent learning materials, attitudes of the learner toward materials, and cost factors.

The first step in a summative evaluation should be a field test of all materials. The groups of students should not be aware of the field test as they are of the initial pilot test. Several groups or classes may be used in order to get a representative response.

During the field test the students and the developer must keep good records concerning exactly how much time is spent on the materials. This will include total time as well as the segmented time for all parts.

Learner attitudes toward the materials should be assessed at this time. It is important in the assessment to determine attitudes concerning specific components of the materials. The summative phase is also the time for bottom line evaluation: (1) Do the materials actually teach? and, (2) Is the cost prohibitive?

To determine the answer to question one, materials should be administered to the control groups not receiving instruction and to an experimental group receiving instruction. An analysis of the pre- and post-tests should provide definitive results. Answering question two concerning costs is often more difficult. Difficulties come about because of several factors--expenses are often variable, costs are absorbed by other units, costs fixed by the very nature of the developing institution, or expenditures are often, at best, "guesstimates."

After the adoption of materials in an educational system, certain maintenance activities must be established. A continual eye on the cost benefits of the materials is essential (does the learning level justify the cost). Another basic maintenance function is upgrading and updating materials. Learner attitudes and the changes learners constantly undergo should also be considered.

James Wall in his article "The pervasive process of curriculum validation" perceives evaluation and validation as being practically the same thing. The primary difference from a traditional viewpoint is that evaluation tends to focus on an entire program while validation is concerned primarily with steps in curriculum material development. In comparing Wall's philosophy to that of Tennyson the reader may note many similarities. Tennyson would have evaluation measures in each phase of the curriculum development process, not just at the end. Wall stresses validation processes in the developmental tryout and training stages. The concept of evaluation in this case is very similar to validation.

Wall best makes his argument for validation in his description of empiricism versus impressionism. Simply stated, a vocational materials developer needs empirical evidence concerning what a task should be and how it should be measured. Even though development must begin with the knowledge of an individual teacher, the developmental process must not rely entirely on the writer's impression of how things should be (no matter how experienced the writer is).

Earlier in the Handbook guidelines were presented on establishing materials for new programs and maintaining an existing curriculum. This systematic model may be found in the task area SELECTION AND ORGANIZATION OF VOCATIONAL EDUCATION CONTENT, TRAINING AND MATERIALS, page 25. Wall stresses the need for relying on a model such as this which uses the systems approach in curriculum materials development. Validation should be an integral part of this or any systems approach utilized.

STUDENT AND EMPLOYER FOLLOW-UP

The case for empirical data upon which curriculum improvement decisions may be made was presented earlier in this section. Advisory councils and community surveys were explored as potential sources for this data. A third data source is information obtained from student and employer follow-ups. Alumni and employer follow-ups are standard practice in most schools. Graduates are generally surveyed in the fall following graduation and again five years later.

An alumni report will answer questions concerning employment status, type of work, location, duties, satisfaction, relationship to training and salary. Another important aspect of this report will be the students' opinions of the school, programs offered and curricula. A major objective will be information on how well the school prepared students for their jobs.

Another essential source of data concerning the students performance on the job is employer surveys. Employer surveys will not only provide supplementary data similar to that received from students, but will also help identify current and potential problem areas.

The forms presented in figures 28, 29 and 30 were prepared specifically for use in area vocational-technical schools; however, they should be applicable with very slight revisions for use in other post secondary programs as well as secondary programs.

Figure 28

FOLLOW-UP OF ALUMNI

School_____ Code No._____ (1-3)

Course_____ Code No._____ (4-9)

Name_____ Date_____

Complete mailing address_____

_____

Check (x) Correct Space

10. Did you attend full time or part time? _____Full time _____Part time

11. Did you attend day or night classes? _____Day _____Night

12. Sex _____Male _____Female

13. Did you graduate? _____Yes _____No

14. Number of quarters completed (Circle one.) 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, or more

15. Are you in Armed Forces? _____Yes _____No

16. Are you employed full time? _____Yes _____No

17. Are you employed part time? _____Yes _____No

18. Are you continuing education full time? _____Yes _____No

_____ (Give name of school) _____ (Location, Course)

19. Are you unemployed? _____Yes _____No

20. If unemployed, are you currently seeking employment? _____Yes _____No

21. Is your current job related to the training you received?

_____Yes, the kind of work for which I am trained

_____Yes, related to my area of training

_____No, in a different occupation

22. Length of time in present job:

_____Less than three months

_____More than three but less than six months

_____More than six but less than nine months

_____More than nine but less than twelve months

_____More than one year but less than two

_____More than two years but less than three

_____More than three years but less than four

_____More than four years but less than five

_____More than five years

23. Current weekly salary before deductions

_____Under $60 _____$121 to $140

_____$61 to $80 _____$141 to $160

_____$81 to 100 _____$161 to $180

_____$101 to $120 _____$181 or more

24. How satisfied are you with the job?

_____Very satisfied _____Satisfied _____Very disatisfied

_____Well satisfied _____Not quite satisfied

25. Do the things you learned in school help you on your present job?

_____Yes, the help a lot

_____Yes, they are of some definite help

_____No, they don't help much if at all

26. How many major job changes have you had since graduation (Circle one.)

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, or more

27. I was assisted most in obtaining my first job after leaving school by

_____Someone working for the school

_____Friends or relatives

_____An ad in a newspaper or magazine

_____An employment agency

_____A previous employer of mine

_____Other (Explain_____)

28. How long after leaving the school did you actually begin work on your first job?

_____There was no wait, I went to work the next day

_____More than one day but less than two weeks

_____At least two weeks but less than 5 weeks

_____Five weeks or more

_____I haven't had a job since leaving the school

29. My first job is (or was)

_____Within by hometown community

_____Not more than 25 miles from my hometown

_____Between 26 and 100 miles of my hometown

_____More than 100 miles from my hometown

30. How many job offers were received before you accepted your first job?

1, 2, 3, 4, 5, 6, 7, 8, 9, or more

31. How would you rate this school?

_____Very good

_____Good

_____Fair

_____Poor

32. Should the school have given more instruction time to

_____Laboratory

_____Theory

_____Neither (Specify):_____

33. To what extent did the school prepare you to work with your supervisors, co-workers, subordinates?

_____Excellent preparation

_____Adequate preparation

_____Some preparation

_____Little preparation

_____No preparation

34. Are you self employed? _____Yes _____No

35. Date last attended this school: _____Month _____Year

36. Title of present job:_____

37. Tasks:_____

38. Name and address of firm employing you:

_____

_____

39. If you are unemployed or if you are not employed in the field for which trained or related field, why?_____

_____

_____.

40. When I started to work I was least prepared _____

_____

_____.

41. To improve the training in the field I studied I suggest_____

_____

_____.

42. To help individual students in the school through the admissions, counseling, or job placement programs, I suggest_____

_____

_____.

43. To improve the school as a whole I suggest_____

_____.

44. What contact have you had with the school since you left?_____

_____.

45. What type of courses would you like to have the school offer for graduates?_____

_____

_____.

Figure 29

COVER LETTER FOR EMPLOYER FOLLOW-UP

(School Letterhead)

(Company Name)
(Address)

Re: _____
Employee

Dear _____:

In order to aid both our school and your company, we are requesting that the enclosed employee rating sheet be completed and returned to us at your earliest possible convenience.

We would like to suggest that the form be directed to the employee's immediate supervisor, and that the employee be compared with other employees of similar work experience.

Our school is making a sincere effort to provide business and industry with well trained employees. You will be doing us a great favor by completing the form. Only through evaluation of our graduates by their employers will we be able to do our best job.

Sincerely,

(Name)
Coordinator of Student Personnel Services

(xxx)

Enclosure

Figure 30

RATING SCALE FOR EMPLOYER FOLLOW-UP

EMPLOYEE RATING SHEET

NAME OF EMPLOYEE _____

COMPANY _____

JOB TITLE _____

DUTIES (Task) _____

	Superior 1	Above Average 2 3	Average 4 5 6	Below Average 7 8	Poor 9
Job Understanding					
Job Skill					
Reliability					
Punctuality					
Iniative					
Productivity					
Safety Practices					
Housekeeping					
Appearance					
Quality of Work					
Leadership Ability					
Learning Ability					
Adaptability					
Ability to Work With Others					
Overall Potential					
Ability to Follow Instruction					
Observance of Company Policies					
Need for Supervision					
Motivation					
Willingness to Learn					
Pride in Work					
Self Confidence					

Figure 30 (Con't.)

COMMENTS:

_____

_____

_____

_____

RATED BY: _____

TITLE _____ DATE _____

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APPENDICES

Appendix I - Sample Philosophy

A VOCATIONAL EDUCATION PHILOSOPHY STATEMENT

FOR

PEANUT COUNTY SCHOOL SYSTEM

We believe that people are spiritual, humanistic beings. People are complex because they are the sum of all their experiences. Humankind is an ambitious, basically industrious, and progressive species. People are social beings that need to demonstrate their individuality and worth to group and society goals.

We believe that knowledge is compounding rapidly. However, knowledge can be divided into segments which can be analyzed and learned. Through knowledge humankind can obtain a better understanding and awareness of themselves and their environment.

We believe that the learner is a highly complex being with unique skills, knowledge, abilities, and interest areas. The drive, goals, and needs are determined by the learner's abilities, skills, knowledge and interest areas. Learners learn best when knowledge is relevant to their needs and capabilities.

We believe that learning is a continuous process. Learning should take place by the application of proven learning theories appropriate to the learner's needs and capabilities. Learning has occured when the student is capable of performing or using the information gained.

We believe that society looks to education to meet its needs and to prepare its members to continue its values and beliefs. Individuals contribute to or shape individuals. Therefore, the individual cannot be considered apart from society.

We believe that vocational education offers occupational exploration and training to those learners from kindergarten through adulthood who have either need, skill, capability, or interest. Vocational education provides training

for students at all levels of ability and knowledge. Vocational education helps learners to learn and understand attitudes and work practices required to compete successfully in the world of work, obtain occupational retraining and updating of skills and knowledge, and attain individual goals and needs through proven meaningful learning experiences.

Vocational education is a part of the total education program and should be equally balanced with other programs in the school system.

Appendix II

IMPLEMENTING THIRD DIMENSION CURRICULUM:

THE PICKENS TECH APPROACH

The Pickens Area Vocational-Technical School faculty has long been recognized as one of the most outstanding in Georgia. However, they have been unwilling to sit on their laurals. They are constantly in touch with local employers and involved in program improvement activities. It was in this manner that they confirmed the need for increasing and formalizing the third dimension of their collective vocational and technical curricula.

For some time the feedback from local industry had been indicating that the school's graduates were well qualified in skills and knowledge, but were found lacking in certain of the affective skills. Participation in a career guidance project for adults also produced a statement of similar concerns from the student body. With this information, the school and faculty took steps to verify and resolve the problem.

The following objectives were established for the effort:

1. Perform a needs assessment and analyze the data.
2. Categorize the needs into groups to facilitate their introduction into the curriculum.
3. Isolate from research, attitudes and worker behaviors that are necessary for continued successful employment.
4. Plan and develop curriculum/instructional materials for the categories identified in objectives two and three.
5. Develop classroom management skills conducive to enhancing student attitudes toward work and participation in the labor market.

All five of these objectives were directed toward the school as a whole and required direct faculty participation from the beginning.

In addition to the objectives on the previous page, a plan for the faculty and administrators had these objectives: (It is significant to note that the school administrators participated in all staff development activities.)

1. clarify and expand the needs assessment data;
2. provide the staff with appropriate background information;
3. produce instructional activities and materials in the affective domain; and,
4. develop the instructor competencies necessary to implement and operate the affective dimension of the curriculum.

To aid the instructors in developing their activities and in preparing their affective dimension of the curriculum, a series of staff development activities was conducted. These included a review of the materials and process for career development, improving group leadership skills, presentations of innovative techniques by fellow instructors, materials development, preparation of behavioral indicators and evaluation checklists, reading and presentations in career development, the work ethic and the affective domain of learning.

Rather than describe in detail exactly how the objectives were carried out. This appendix will present a sampling of the concepts and learning strategies the Pickens Vocational-Technical instructors included in the third dimension of their respective curricula.

An important part of the teaching activities focused on the student's self concept. The faculty felt that a positive self concept would produce a more adaptable worker, one who could accept authority and criticism.

They recognized that the self concept grows through the acquisition of a set of job skills, but they also believed that the rate of growth in self concept could be increased through additional activities.

The business department used the improvement of personal appearance and hygiene as one step toward higher self esteem. One day per week was set aside as "office day." Office day required each student to dress to business standards. To be sure that each student would have proper clothing for office day, the instructors opened a swap shop. The swap shop featured only good usuable clothing that other people had outgrown or discarded. Participating students could swap, buy or charge clothing.

Office day was followed by an employability skills unit on applying for jobs. This included techniques for job seeking, mock interviews, completing sample job applications from local industries and personal appearance.

In the career planning category, the trade instructors were particularly interested in career awareness. Their students had already made a career choice. That choice, however, was mostly focused on an occupational field (i. e., welding) not on a particular job or jobs within the career field. This concept is uniquely different from the typical view of career awareness in that it is provided after the initial occupational choice had been made. By alerting the students to the need and purpose for this awareness, they could acquire part of the information through the normal skill-building activities (i. e., What use is made of MIG welding?). This approach was augmented by the use of media and group discussion.

The employability category included lesson plans and learning strategies to promote being on time and regular attendance; maintaining one's share of the work load and performing as a team member; the importance of production schedules; proper care and use of equipment, especially to avoid abusing the equipment and to develop self direction on the job. As one instructor

aptly put it, "Don't wait around to be told what to do."

The interpersonal skills category focused on the supervisor and peer relationships. The students are prepared to function as a member of a production team which includes an emphasis on the avoidance of over-socializing with peers and pressure to follow established procedure. The learning strategy for these processes basically revolved around the actual conduct of work and projects in the shop/laboratory with the instructor serving as supervisor.

Appendix III

A COMPLETE OUTLINE OF DUTY 4

Performing curriculum management functions for the vocational program

TASKS:

A. Designing and developing the vocational curriculum

1. Developing curriculum to meet the objectives of vocational education
2. Planning the co-curriculum activities
3. Developing the curriculum plan
   a. Establishing a philosophical position
   b. Setting overall goals
   c. Developing the curriculum framework
   d. Relating the goals to the school structure and curriculum framework through the goals
   e. Establishing task objectives (instructional)
4. Incorporating safety in the whole instructional program
5. Establishing craft/advisory committee
6. Identifying course content and training requirements
7. Relating materials to course content and training requirements

B. Selecting and organizing the vocational education content, training and materials

1. Evaluating instructional materials developed by vocational teachers
2. Evaluating instructional materials developed in other states
3. Developing and using the criterion referenced test
4. Developing materials
5. Relating vocational content to school/program/task objectives
6. Selecting and organizing vocational content, training and materials
7. Coordinating exploratory and pre-vocational programs with vocational programs

8. Coordinating articulation between secondary and post-secondary vocational programs

9. Coordinating laboratory courses with co-op programs

10. Organizing short term extensions programs for adults

11. Assisting instructor with methods of instruction, organization and lesson plans

12. Correlating vocational and academic subjects as well as correlating vocational programs

13. Assisting instructors in learning to use audio-visual equipment

14. Planning instruction for special populations

15. Preventing sex bias

16. Implementing individualized instruction

    a. Defining personalized instruction

    b. Insuring safety and first aid procedures

    c. Applying a change agent strategy

    d. Scheduling the implementation

    e. Describing the delivery system components and contents

    f. Providing a procedure for searching and evaluating supportive materials

    g. Providing methods for student motivation, self discipline and assuming responsibility for their own learning

    h. Grading students in individualized instruction

    i. Planning the classroom/lab budget

    j. Arranging the physical facilities for an individualized program

    k. Acquiring instructional hardware

    l. Acquiring commercial media and A/V supplies

    m. Establishing the related learning lab

    n. Establishing filing systems, student records system, and resource control methods

o. Establishing policies regarding live work in an individualized program

p. Insuring tool control and security in an individualized program

q. Anticipating typical installation problems including correcting weaknesses or malfunctions in acquired materials

r. Establishing prior planning procedures for classroom/lab (live work) activities and maintaining student supplies

s. Using a unit of instruction which may include developing instructional packages and audio-visual and/or modifying packages to fit a given situation

t. Providing a plan for the first day which would schedule students among the packages

u. Developing a student grading system

v. Maintaining an individualized curriculum

   i. Keeping the hardware in working order

   ii. Keeping student materials on hand

   iii. Keeping audio-visuals (software) in useful condition

   iv. Keeping the content updated

w. Monitoring the implementation

x. Maintaining the program log

C. Coordinating human resources for curriculum and instructional purposes

1. Using the advisory council in curriculum development

2. Assisting the instructor in the development of curriculum materials

3. Using resource people

A COMPLETE OUTLINE OF DUTY 5

Implementing and conducting an evaluation system for the vocational program

TASKS:

A. Performing the needs assessment

1. Collecting and analyzing work force information
2. Determining and verifying student needs
3. Determining and verifying program needs

B. Evaluating the instructional program

1. Performing the process evaluation
2. Performing the product evaluation
   a. Assessing student performance
   b. Conducting a student follow-up

C. Evaluating Curriculum Materials

1. Facilitating decision making
2. Validating in the evaluation process

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